

HOLYOKE

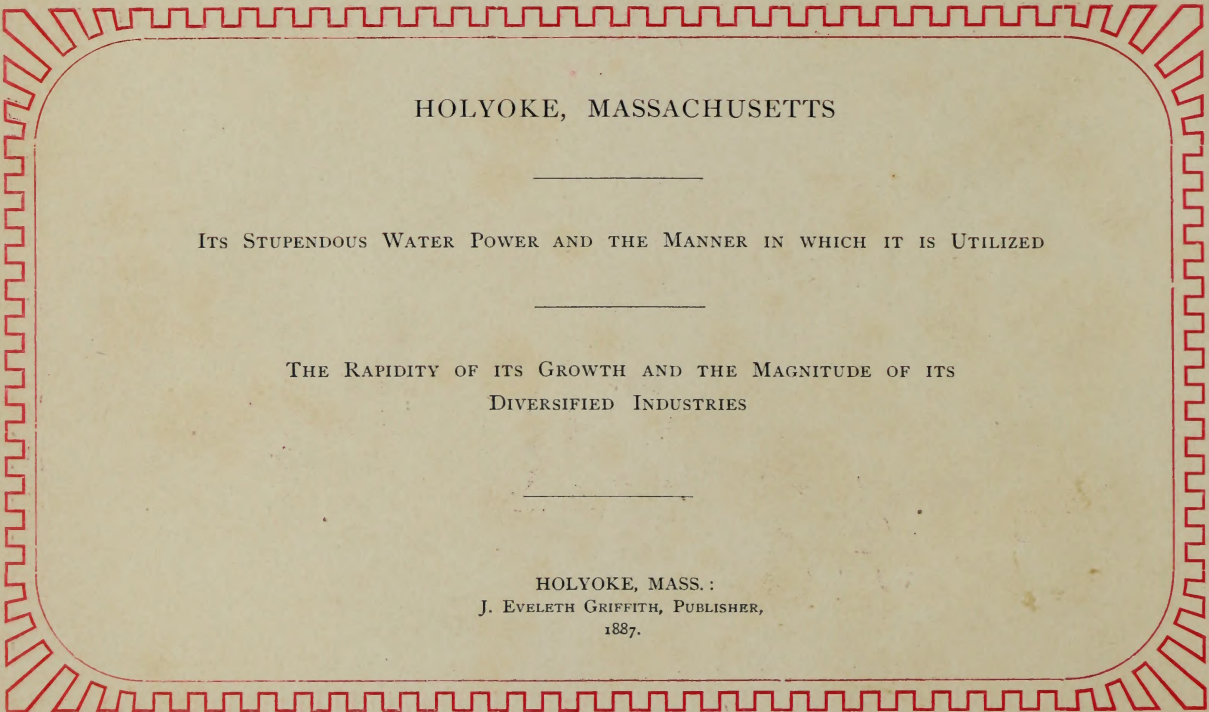


HOLYOKE TO DAY

Penned AND
Pictured

1887





HOLYOKE, MASSACHUSETTS

ITS STUPENDOUS WATER POWER AND THE MANNER IN WHICH IT IS UTILIZED

THE RAPIDITY OF ITS GROWTH AND THE MAGNITUDE OF ITS
DIVERSIFIED INDUSTRIES

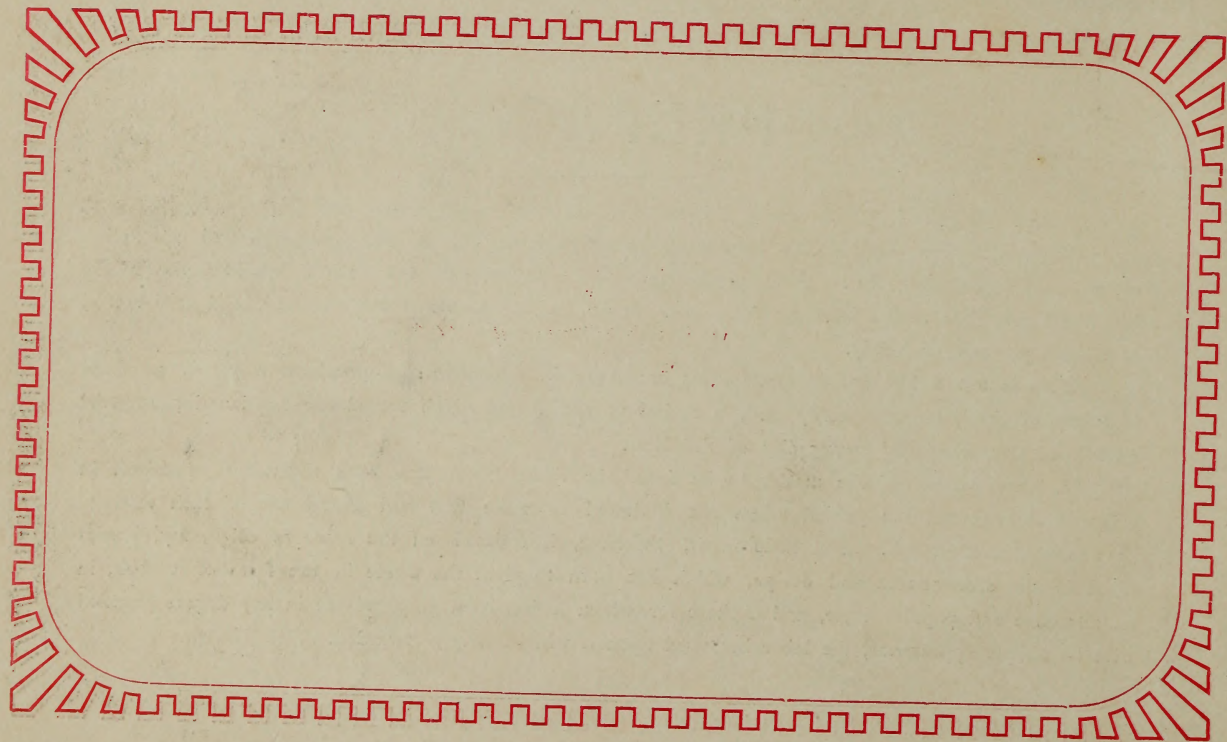
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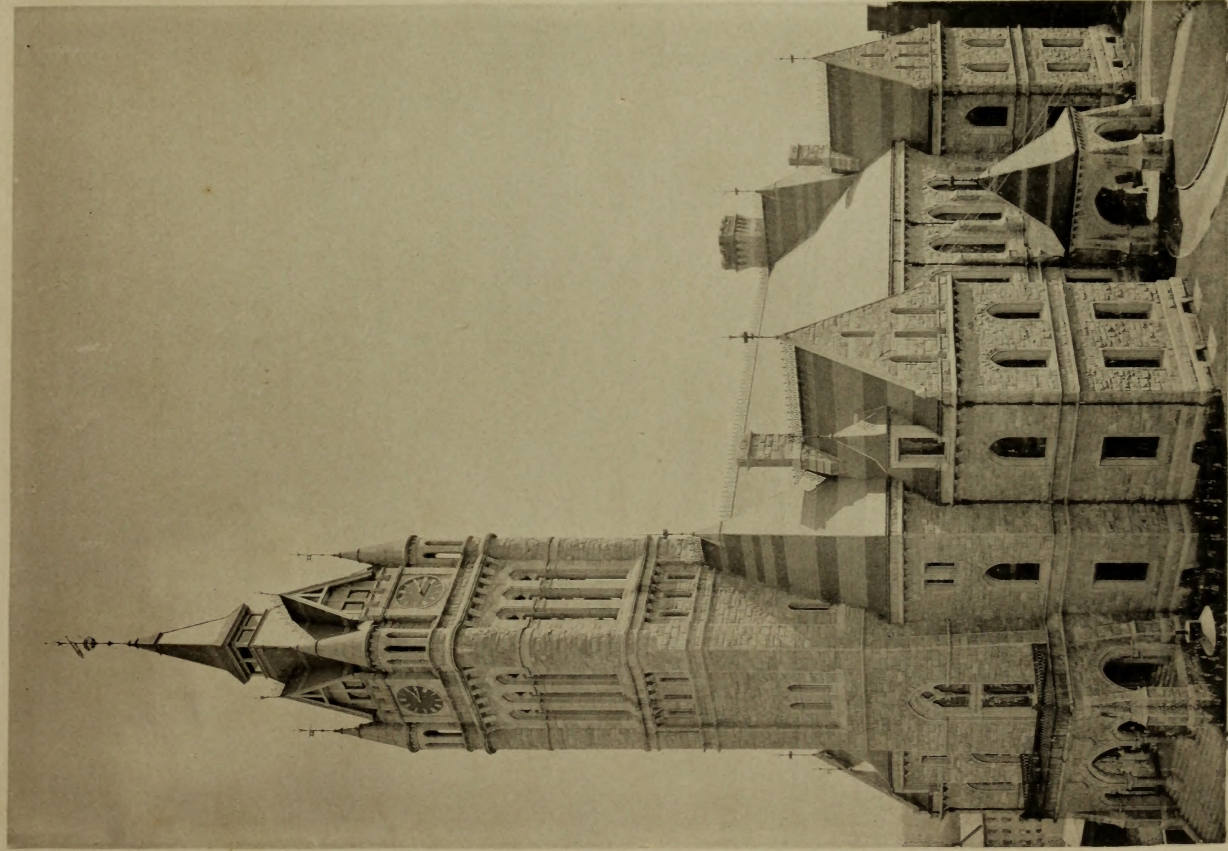
PREFACE.

HOLYOKE TO-DAY! What would it be without its great water power and big dam? Following this thought has resulted this interesting and graphic account of the conception and completion of this vast engineering feat. And, to illustrate and describe—all too briefly, however, the record which Holyoke has made, both at home and abroad, is one to be proudly recited, and to be read of admiringly and profitably.

This is not a history; no pretensions are made in that direction, nor is it a hastily prepared summary of the past, but briefly told, a recital of the events which record the rapid and substantial growth of this wonderful *young* city of the East.

A large portion of the matter to be found in these pages has been heretofore published, in different shapes, and the publisher has not hesitated to make free and liberal use of such material as was within his reach. But little merit, therefore, is claimed on the score of originality, except it be in the arrangement and design, which has been to place the whole in the form of a book, in an attractive and popular style, and if those for whom it has been prepared are in any degree gratified with its unique appearance, the labor bestowed upon it will be amply rewarded.





CITY HALL.



HOLYOKE.

H^oOLYOKE has no past that can really be called a history ; it can celebrate no centennial, nor even half a centennial. It has no pathetic memorials of Indian assaults and massacres, no ancient landmarks tumbling into picturesque ruin and decay, no descendants of first families that lived in the times which tried men's souls and bodies. True enough, it had an existence more than a century ago ; the city and what are now its suburbs were a portion of the town of West Springfield, known as "Ireland Parish." The site of it had been known to the Indians in the days when they held undisputed sway here and hereabouts, and the Falls of the "Quonektacut," as the rapids were called by them, were a favorite rendezvous and fishing ground.

The City of Holyoke has grown from nothing, in less than forty years, to be the most important paper making city in the world. Its growth has been healthy and in the most substantial way, and it has not only come to stay but gives promise of being one of the large cities of the country at no distant future. Such has been the rapidity of this transformation, that men now living

ave witnessed every stage of its progress, and even lived thirty and forty years before it began. But few residents of the city, however, have anything but a vague knowledge of its past ; most of them are new-comers and have seen only the events of recent date, so that the story of the city's growth is interesting to its residents, as well as to the world at large. It is a story that is purely American. The narrative is not one that would describe a European city and trace its origin in the Middle Ages and its subsequent importance arising through slow accretion and development. The story crowds three centuries into three decades ; a wilderness in the Connecticut valley is suddenly moulded into a social center ; the agricultural stage of civilization all at once disappears and the industrial stage as quickly appears in its place ; it is the story of Rip Van Winkle outdone in the reality ; we have in the narrative an illustration of the rapidity of American social aggregation and much evidence of the quickness with which Americans adjust themselves to new conditions. In every essential regard it is the most remarkable municipal example of deliberate Yankee grit and enterprise on the continent.

About one hundred miles from Boston, forty-five more from New York, and midway between Springfield and Northampton it lies in the highway of northern travel, and two independent lines of rail bring it in close connection with tidewater, and the railway system of New England and New York ; the Connecticut River railroad is a north and south line, connecting with east and west lines

thirty miles up the river at Greenfield, and eight miles down the river at Springfield; the Holyoke and Westfield railroad runs to Westfield and there connects with the Boston and Albany and the New Haven and Northampton railroads.

The sudden growth of Holyoke, and the extent, expansion and variety of its manufactures, have been often noticed in the public prints, but the short period of its existence has been well improved, and it is already a well-ordered, thrifty city, laid out on a large scale, and well filled in with permanent structures, and a stable population, churches, schools, hotels, water works, street railways, electric lights, and the other modern essentials of pleasant and healthful town life has kept pace with the rapid increase of population, and these together with the noticeable solidity and extent of the mill-buildings, the commodious tenement blocks, and the numerous, pleasant, private residences, enable the youngest city in the State to compare favorably with the older manufacturing places in New England in those things which make a location desirable for residence and business. This great change from fields and farms to mills and city sights and sounds has all been wrought in little more than a third of a century; and the moving cause which in so short a time, has given to the State another flourishing city, to the beautiful Connecticut valley another object of interest, to manufacturers another center, and to the active industry of New England another market, is easily stated. It was not the chance junction of intersecting railways at this point, or the demands of

of outlying towns for a trading center, or the sudden expansion of some manufacture already established here. It was simply that where the Connecticut river sweeps around the site of Holyoke, one of the greatest water-powers in America, which had been running to waste for centuries over the "Great Rapids," as they had long been called, had finally been made available for manufacturing purposes, by a series of magnificent canals, and a dam exceeding in dimensions and effect any like structure in the world. Among the natural resources of any section, unfailing water-power has always held high rank. Mines may cease to yield, and other sources of natural wealth may be exhausted, but the flow of the river to the sea is constant, and its daily contribution of power and resulting value to the world, may be exacted forever. And when a great water-power, like that of Holyoke, is made available, yielding its vast total of thirty thousand horse-powers, greater than the water-power of Lowell and Lawrence combined, and greater than the energy of man has ever utilized elsewhere, the possible addition to the industrial forces and capital of the country becomes an interesting study for the manufacturer and the man of business; and gives to the place where such a force is turned to use, unmistakable promise of growth, great in proportion to the vastness of the power employed, and permanent as the force that has brought it about.

The project of constructing a dam on the Great Rapids, which should withstand the powerful current of the Connecticut river and afford motive power for a new city of mills and shops, was so

gigantic, and the capital to be invested was so large for those days, that the undertaking was famous from its inception, and still ranks among the foremost manufacturing enterprises of the world. The great volume of the water at this point, the rapid fall of sixty feet, the rocky ledge underlying the stream, and flanked by walls of solid stone, whereon to locate the dam, the convenient site for the canals and mills, encircled on three sides by the graceful sweep, and steady, unfailing flow of the "Long River," as the Indians called it, rising three hundred miles to the northward among the hills of northern New Hampshire and the mountains of the Canada border, and fed by a water-shed of great area and largely covered with forests, had long attracted the attention of capitalists; but the undertaking was so vast and costly, that if we except the building of a little mill, with its small wing dam, in 1831, nothing was done to develop the water-power we describe until 1847.

Baptist Village, (the section of the city now known as Elmwood) was the principal part of the "parish" in early years, and, located as it was, upon the only road on the west side of the river between Springfield and Northampton, it was a stopping place for stages and a resort for farmers living in the adjacent country when they wanted "to go to store." There was no railroad here in 1840, and all freighting was done by teams and river craft, with Hartford as the principal trading town in this part of the country. Farmers' produce and a few manufactured articles were carried down the river in sloops, scows and barges, and whatever was required in return was brought back

and left at the river landings where wagons were loaded, and then landed to places along the river, or in the adjacent country. The boats, however, could not sail up South Hadley Falls, and it became necessary to make a canal for their passage. Such a canal, with the required locks, was made on the east side of the river for a distance of two and a half miles. At the the lower end a man kept a span of powerful horses and four yokes of oxen constantly in waiting to tow up the canal all boats whose owners paid the required toll.

Soon after 1840 the survey of the Connecticut River railroad was made and, without long delay, the railroad was built, thus making possible nearly all subsequent developments at the Falls. At that time all the houses east of Northampton street numbered only fourteen, being located on territory now covered by almost the entire city. The Western railroad (now the Boston & Albany) had not been built many years before several capitalists from Boston visited the South Hadley Falls for the purpose of determining the feasibility of using the river at this point as a water power. The matter progressed no further than discussion until 1845, when they tried to purchase some of the land hereabouts, which they most needed in their contemplated operation. The owner of this land, Mr. Samuel Ely, would not sell on account of a prejudice that he had against corporations. He was a democrat of the old style who believed that all manufacturing enterprises made the rich richer, and the poor poorer, and he ardently detested the "cotton lords," as he termed cotton

manufacturers. Several of the Boston gentlemen who had on several occasions tried to purchase his land, were approaching his house one day to have another talk with him, when, seeing them coming across his meadow, he took up a shot gun and pointed it at them, remarking, "How I could shoot those rascally cotton lords." Little thinking that the gun was loaded, he raised the hammer and pulled the trigger, when to his astonishment, the weapon was discharged and the shot were sent uncomfortably near the "cotton lords." Thinking they might scare Mr. Ely into a sale of his land, they had him arrested for a felonious assault, and upon that charge he was taken to Springfield, but finding him too self-willed a man to frighten, they had to adopt new tactics.

Those Bostonians had a grand idea that could not live without having its counterpart in reality. There was a river draining an area of 8,144 square miles above a place where it had a natural fall of 60 feet, and the utilization of this water power was their plan. They gauged the flow of the river at low water and found it to be 6,000 cubic feet per second, the equivalent of 30,000 horse powers. Knowing that if they revealed to the public their startling and gigantic scheme of appropriating this power, they would not be able to purchase land from Samuel Ely, nor from other men who owned the land that they needed, at anything less than fabulous prices, they negotiated with Mr. George C. Ewing, of the firm of Fairbanks & Co. of New York, scale manufacturers, to buy the land in the name of Fairbanks & Co., and at the same time to keep dark

the real purpose of the enterprise. Mr. Ewing had bought a farm on the hill west of the "flat" a year or so before, and was personally acquainted with the men he had to deal with. He was a young man of the best business qualifications, shrewd at a bargain and skillful in negotiation.

The first necessity was the purchase of thirty-seven acres of land near where the dam now is. Mr. Ewing repeatedly talked with Mr. Ely and finally persuaded him to set a price upon that parcel of land. The price, though high, was accepted, and a bond for a deed was at once given. In 1846 Mr. Ewing obtained from the Hadley Falls Company an agreement to sell their property at a certain price, but when they learned that he had been successful in his negotiations with Mr. Ely, and suspecting that the name of Fairbanks & Co., was a blind, they quibbled about their bargain and all but refused to sell, unless the contract price should be greatly increased. But they finally sold at the agreed price upon promise of permission to take stock to the amount of \$100,000 in the water power company soon to be formed. Some land owned by a cousin of Samuel Ely was also wanted, but the cousin also detested the "cotton lords" and for a long time flatly refused to sell at any price; but Mr. Ewing's unrelenting persistency led Mr. Ely so far as to offer to sell for \$10,000. Giving him no time to change his mind, Mr. Ewing drew him into 'Squire Ely's office, where a memorandum in writing was made and \$10 paid to bind the bargain. The price was most exorbitant, but the originators of the enterprise had now determined to go ahead at

any cost and paid out money freely. A farmer living where the southern part of Holyoke now is, came to Mr. Ewing one day and wanted to sell his land for \$7,000. The "first refusal" of the land was taken at that price until Mr. Ewing could go to New York and return. Upon his return he told the farmer that the money was ready for the deed; but the farmer in the meantime had received some intimation that capital to the extent of several millions of dollars was somehow or other concerned in the purchase, and he cried like a child as he pleaded for a higher offer. However, he accepted the \$7,000, which was much more than his farm was worth. A farmer named Ashley had died a few years previously and had left a farm to each of two daughters. One of them had a dissolute husband and her friends objected to her selling her farm, fearing that her husband would appropriate the money and drink it up, unless Mr. Ewing would be her trustee and obtain guardianship over him as a spendthrift. Mr. Ewing consented, was successful in doing all this, and secured the land. In such ways, Mr. Ewing bought in the name of Fairbanks & Co. about 1,100 acres of land for \$119,000. Bonds for deeds had been taken in the first instances, and deeds were obtained in the spring of 1847. A survey of the premises was begun on July 29 of that year and soon completed, so that the location of the dam was made on August 17. The legislature of 1848, in the following winter, incorporated Thomas H. Perkins, George W. Lyman and Edmund Dwight as "The Hadley Falls Co." for the purpose of constructing and maintaining a dam across the Con-

necticut river, and one or more locks and canals in connection therewith, and for the purpose of creating a water power to be used for manufacturing articles from cotton, wood, iron, wool and other materials; to be sold or leased to other corporations or persons, to be used for manufacturing or mechanical purposes and also for the purposes of navigation. The capital stock was \$4,000,000. Fairbanks & Co. sold all the land they had purchased to the Hadley Falls Co. and took stock to the amount of \$119,000, and Mr. Ewing's stock was \$20,000, but both Mr. Ewing and Fairbanks & Co. withdrew several years later when it was apparent to them that the company was extravagant, was spending money in a reckless manner and must inevitably fail.

In the winter of 1848 work on the first dam was begun by a large number of men. Mr. Ewing, who had been appointed the land agent of the company, had the duty of hiring the men for work on the dam and employed several hundred at eighty cents per day. Work on one of the canals was begun at the same time and the men who had the contract for doing that work soon wanted to reduce the wages to seventy cents. It was necessary that the wages for work on the dam and on the canal should be the same, or it would be impossible to get men to work for the lower wages; so the contractors requested Mr. Ewing to cut down the pay, but he refused to do so on the ground that he had agreed to pay his men eighty cents a day. The directors, however, overruled him and the wages were cut down, but Mr. Ewing paid the deficiency to some

of the men out of his own pocket, that his agreement with them might be fulfilled. It was much desired that the works should be completed in that year, and the directors requested Mr. Ewing to that purpose, to work the men on Sundays. He, believing it to be contrary to the laws of God and man, refused to do this and the directors were so persistent that he resigned, and 'Squire Rising of Northampton was appointed to take his place. The people in the vicinity sympathized with Mr. Ewing in this matter and, not long after, sent him to the legislature. He was subsequently a member of the school committee, superintendent of schools, and did much to lay out the city and improve its appearance. He now owns thirty or forty acres in the suburbs of the city and lives on West Dwight street in a very sightly location. The first two houses built since the purchase of the land for the Hadley Falls Co. were erected by him near the dam. On January 1, 1848, there was a general strike among the men employed in the preliminary work pertaining to the dam. The strike lasted until the 10th when twenty of the strikers went to work. This occasioned a riot among the strikers who refused to work, and they gathered in hundreds around the twenty who were working and mobbed them. The engineering corps and several residents of the place, who tried to prevent a riot, were severely maltreated. Philander Anderson, chief engineer, and Constable Farnham were painfully, though not seriously, wounded and had to be carried off the field. The authorities called on the militia and 25 artillerymen from Northampton responded, but

they came too late to be of service. The principle rioters were arrested and punished. Cholera also broke out among the laborers and many of them died in consequence.

The construction of the dam went on rapidly during the summer. At one time, August 5, there were 1,277 men employed on all the works. The first sill of the dam was laid on June 5, and on November 4 the whole structure was completed. The event was celebrated by a ball in the company's office on the evening of the 4th. The building of this huge dam had been the talk of all New England and many were the conjectures of its failure and success. It was startling to think that a mighty river could be turned from its course and be made to drive perhaps a million of the wheels of industry. The then estimated water power was sufficient to run 1,200,000 spindles and to furnish employment for 100,000 persons. The dam had cost from \$50,000 to \$100,000. It was over 1,000 feet long, was 30 feet high, and was made of timbers bolted together and also bolted to the bed-rock of the river bottom. The test of the dam's strength, when the openings in the structure, through which the water was flowing, should be closed, was a sight thousands longed to see. The openings in the dam were closed by gates on November 16, 1848, at 10 a. m. At least 2,000 people lined the banks to witness the event, and before the day closed 3,000 people had visited the place. The dam began to leak badly at the very start, and brush and gravel were thrown on the places that were leaking the worst, but as the water slowly came up higher and



THE DAM, FROM EAST SIDE OF RIVER.



higher the strain upon the dam was so great that the water came through in great quantities, and it was evident that the structure must give way. The dam was covered with people, and hundreds were in the river bed below the dam. All these people were warned to go to the banks of the river, and fortunate it was that all obeyed. In the meantime the stones composing the bulkhead were beginning to upheave from their places, such was the pressure against them, and had the dam remained much longer the bulkhead would have been demolished and the imprisoned waters would have rushed down the canal and laid waste the whole village lying below it. At 3.20 p. m. the dam could no longer endure the strain and, breaking from its foundation, it turned over and the river was again master of itself. The late Dr. J. G. Holland, then on the editorial staff of the *Springfield Republican*, and who witnessed the scene, gave the following graphic description of the circumstance in the *Republican* of the next morning: "When the water broke through, the pond had filled to within several feet of the top, and the pent-up waters rushed forth with a mighty power and dashed and tumbled over the rocky bed below, sweeping away with them the now broken and scattered, but still huge portions of the wreck. The scene was both magnificent and frightful. To describe it were impossible—no pen limner could convey a tithe of the impresson that is vividly marked upon the minds of all who witnessed it. Strong hearts trembled within them and every face was pale at the sight. The labor of many minds and hundreds of hands for a long summer—

the pride and the confidence of the contractors, just in the hour of triumph, were swept off in an instant, and nought but the huge wreck that remains is left to tell of the mightiest structure of the character, that was ever built in this country." Those who saw it say that the front of the rushing waters was a wall, high at the start, but becoming less as the released water went down stream. At Chicopee it was still two feet high. There was a ferry some distance below the dam and when the ferry-boat was struck by the water it was like an egg-shell upon its bosom. The boat was carried three or four miles and stranded on the shore. A farmer who had invested some money in the stock of the company was heard to remark, as he saw some of the timbers float down stream, after the main part of the dam had gone out of sight: "Well, some of that property was mine, but it was worth all the money I put into it, to see it go." While the pond was filling a gentleman interested in the company was telegraphing at intervals to some of the owners of the property in Boston concerning the prospects of success. His telegrams read about as follows, the last one being verbatim: "10 a. m., the gates were just closed and the water is filling behind the dam;" "12 m., the dam is leaking badly;" "1 p. m., we cannot stop the leaking;" "2 p. m., the stones of the bulkhead are giving way to the pressure;" "3.20 p. m., your old dam has gone to hell by the way of Willimansett." Mr. Ewing, in conversation with Mr. James K. Mills, the treasurer of the company, a short time after this event, remarked that the dam had shared the

fate of all things done in violation of God's law, referring to the work on Sunday. Mr. Mills replied: "I guess if the engineers had understood the laws of the river, the laws of God wouldn't have made the dam give way." Men who had bought land on speculation were feeling badly about that time, but their spirits were soon lightened, upon learning that another dam would be built next year.

There was no discouragement at the loss of this dam. Something had been learned about the construction of such an immense dam and the chief engineer, Philander Anderson, who received his first training at West Point, was confident that he could build a dam that would stand the pressure of the mighty river. The wreck of the old dam was cleared from the banks and preparations began in the spring of 1849 for the building of the second dam. In April of that year two coffer dams were built, one on each side of the river, and each extending 200 feet from the bank into the stream. They were completed in May. The water was pumped out of these coffer dams and the rock was excavated to a depth of six feet. The construction of the main dam was then begun by laying down three fifteen-inch square sticks lengthwise across the river with their upper surface in a plane inclined at an angle of 21 degrees. The rock below was cut to give them a proper bearing and then the sticks were bolted to the rocks with one and a quarter inch iron bolts, 3,000 of these bolts being used in the whole dam for this purpose. In this way the dam was started in sections, six feet from center to center, and, as the river is 1,017 feet wide at that place, there were

170 sections. These sections were connected or tied to each other by 12-inch square sticks running across the river. The structure above the foundation sticks was made up of alternate courses of these ties and rafters, also 12-inch square. Between the rafters, in the same course with the ties, short blocks were introduced to stiffen or prevent the bending of the rafters. At the splicings of the rafter longer pieces were put in and treenailed to the rafter with eight two-inch treenails of oak. The foot of each rafter was scribed and bolted to the rock with $1\frac{1}{4}$ -inch iron bolts. The structure was thus reared to its full height and its upstream surface covered with 6-inch plank with the exception of a space of 16 feet, which was left temporarily open. The toe of the dam was secured by placing a second covering of plank at right angles to the first with the lower end scribed and bolted to the rock. Except the space left temporarily open, it was filled solid with gravel. The crest of the dam, four feet on the up-stream side, was covered with boiler iron three-eighths of an inch thick to protect the top from the blows of drift wood and ice.

In this manner 400 feet of the dam were completed, 200 feet on each side of the river. As the summer advanced and the water became lower the coffer dams were extended 200 feet farther on each side, crowding the water into a space of 217 feet in width in the middle of the stream. The structure was continued as above described through the extended coffer dam. There then remained only the central portion of 217 feet to be finished. Here, to dispose of the water, it

became necessary to remove the coffer dams, previously constructed, and let the water on to the portions of the main dam already completed. A strong coffer dam was then thrown across the gap, four feet higher than the first ones, raising the water and turning it through the openings left in the main dam. This accomplished and the water pumped out of the coffer dam, the last piece of the structure was rapidly pressed forward to completion. The coffer dam in the center was then removed and the dam stood complete except the opening in the planking, through which the water was running the whole breadth of the river. Nothing remained but to close this opening. This was done by building gates or doors of the width of the opening, 16 feet, and each 18 feet long. These gates were put together on the slope of the dam above the opening and hung by five strong hinges each to the planking already spiked down. When finished these gates were raised by derricks and lowered partly over the opening, held in place by a post attached to a lever, which, by power applied at the proper time, would remove the post, leaving the gate to drop into place. All the other openings in the dam excepting these gateways had been closed before the removal of the coffer dam. Forty-six gates, each 18 feet long were constructed to close the openings.

In all this work nearly 4,000,000 feet of lumber were used. All open spaces were filled and closely packed with stone, as well as gravel, to a height of ten feet, and the planking of the upper portion of the dam was doubled to a thickness of eighteen inches of solid timber. The bed of

the river was graveled 70 feet above the dam, and this graveled was continued over 30 feet or more of its sloping surface, which was 92 feet in width from the foot to the crest. The masonry of the abutments, bulkhead and waste-weir immediately below, was made of heavy ashlar work, built on a solid ledge and massive enough to withstand the heavy pressure to which it is subjected. The bulkhead, 140 feet long and 46 feet wide, is now surmounted by an extensive gate house.

It had been intended to close the openings in the dam on October 23, 1849, but recent rains had already begun to raise the river, and the engineers made haste to test the dam before the stream should be too high. So on Monday, October 22, says the *Hampden Freeman* of October 27, a newspaper then published in Holyoke, "orders were given to shut off the water. The gates had been previously prepared, and were placed parallel with the water and each was supported by a mere prop. At 12 o'clock and 35 minutes the men were all stationed, along the top of the dam, and the signal was given by Mr. Anderson, the chief engineer. In an instant each alternate gate fell, with a heavy plash, into the water, and all was silent:—then another signal, and the remaining gates buried themselves in the eddying floods. The waves, hitherto foaming, restless, checked by the huge breastwork, appeared like a restive horse curbed by a strong hand. The cheers of the multitudes on the western banks, were echoed by cheers from apparently an equal number on the eastern shore, and the waters began to accumulate, and to fill the pond. The note

of preparation had been sounded along the wires to Hartford and to Boston, and many strangers arrived in town during the afternoon. The banks on either shore were lined with spectators during the day, and the estimated number of persons present was six thousand. The most interesting question was, 'How long will it take to fill?' and it was not definitely answered until about ten o'clock in the evening, when the cheers of the crowd on the South Hadley side indicated that the water had commenced to flow over upon that side, and in less than ten minutes it was flowing over the whole length of the dam. At eleven o'clock the water having acquired a full head, fell in one unbroken sheet, and by the light of fires built upon either shore presented a beautiful spectacle." The next day the village was crowded by people from far and near to see the famous dam. The falling water vibrated doors and windows and, it is said, even caused houses to rock on their foundations for a short time after it began to flow over the dam. It is said that one house rocked to such a degree that an old man who was in it was sea sick, and in another quaking house a man thought he had the shaking palsy! But the key note of the vibrations changed in a few days and they made no further trouble. The pond above the dam came so near the Connecticut River railroad that the water undermined about 40 rods of the track so that the rails and ties slid into the river, but this was repaired in two days. When the gates were closed, in consequence of the notice that had been sent through the neighboring country, express trains began to run from

Springfield, Northampton and Hartford. The train coming from Hartford brought 167 persons from that city, and enough from way stations between that city and Springfield to make the number 300. At 7 p. m. the water in the river at Chicopee, a little over three miles below, had fallen five feet, and nearly four feet at Springfield, with scarcely a perceptible current. As the water behind the dam was filling up it was noticed that it leaked only a little,—just enough to bathe the wood and keep it from rotting. During the filling of the pond, the water below left the bed of the river, only a little water remaining in hollows in the rocks where it could not run out. Many tools that had been lost in the work, were then recovered, and eels and fishes were taken out of the pools by the handful. A rough estimate of the lateral pressure, which the dam sustains gives nearly twenty-nine millions of pounds, the vertical pressure being three times that amount. The total cost of the structure in 1849 was set down at \$150,000.

Before leaving this subject it may be well to mention that about eighteen years after the building of the dam, the property in the meantime having been purchased by the Holyoke Water Power Co., it was feared that it had become weakened by the action of ice and water, and after the spring freshet of 1868 the anxiety of the company led to an examination of the front foundations, a difficult and perilous undertaking. It was found that the force of heavy logs and huge ice cakes brought down by the floods had worn away the front timbers, to the length of 20 feet in some

instances, and taken out large pieces of the rock foundation, some of them weighing 20 tons, leaving great holes in the front of the dam. To check this wearing action it was decided to strengthen the dam by building a front extension, similar in form to the original structure, in such a way that the dam should have a sloping front, giving the dam the form of a roof and making it capable to stand any pressure that might be put upon it. The new structure was fifty feet wide at the base, rising about five feet from the level of the stream below, and thence sloping to the top of the old dam. To reach the foundation rock it was decided to sink cribs in front filled with heavy ballasting of rock, over which the net work of massive logs and timbers was constructed. Both the old and new structures were made absolutely solid, the interstices being filled with stone, leaving no open-work timbers in the old dam. The work was begun the first of September, 1868, and the middle section, about one-third of the structure, was built the first season. About one hundred skilled dam-builders and lumbermen were at first employed, and the number was soon increased to 200. The following season some 250 men were employed on the work. About a week after the work began forty of the workmen struck for an advance of wages, but all but eight returned to work again after making a slight disturbance. The high water, in consequence of protracted storms, causing a delay in the progress of the work about the middle of the month, a coffer dam was built to protect the work on the cribs. Car loads of timber and stone, and

rafts of huge logs from the north arrived daily. The middle section was finished and the water let on to the slope in January, 1869. That portion of the work cost about \$80,000.

In the following June the work of extending the completed portion east towards the South Hadley Falls shore was begun. The work had no interruption until the great freshet in October which brought down a great mass of logs, bridges and trees and damaged the crib work to the amount of \$25,000, causing a serious delay. The east side was finished during the following winter and the remaining part was built the succeeding summer. The great work was completed in September, 1870, and its whole cost was about \$350,000. When finished it was pronounced a triumph of engineering skill, and is strong enough to withstand any flood. But, though the dam was thus saved, leaks have been frequent, many of them serious. The plank covering of the dam was too light and has been easily broken through. When the apron was built, heavy stones were dumped or lost out of scows and, falling on the planks, partly broke them through, so that places were left that eventually grew into bad leaks. In other ways the water found passage ways through the covering and the tremendous weight has several times torn out wide passages in the timbers. The stoppage of these leaks was performed in cribs or coffer dams that were placed around them; but new leaks were sometimes made in this way and the work at the best was unsatisfactory. In 1884 the leaks became so bad that they foreboded disaster to the dam, if not its entire abandon-

ment, and much was said and written at the time as to what would be the result if this great dam should become useless. The daily product of writing paper in the United States would then be reduced one-half and, while Holyoke manufacturers would suffer from idleness, others would sell more goods and at higher prices. The lessees of water power becoming somewhat frightened, formed an association for the protection of their interest in case the Water Power Company should abandon the dam. But the company had no such design, for it determined to put the dam in a better condition than it had ever been. A plan of repairs was devised by Mr. Clemens Herschel, the hydraulic engineer of the Holyoke Water Power Company, conspicuous for originality and for the most thorough protection of the dam against leaks. Nothing of the kind having ever been attempted before. Mr. Herschel's plan was to overhaul the dam in 100 feet sections, keeping the water back with coffer; rip off the covering 20 feet wide from the crest, and puddle gravel into all the spaces between the timbers, having first made a water tight plank sheet piling, and puddling the gravel on both sides of the same. As is well known to engineers, the puddling of gravel makes it exceedingly compact, much more so than it is found in nature. The flowing water in this instance carried the gravel along with it in its passage through the dam until one exit after another was stopped up, until finally the water could find no more space in which to leave gravel. There is no doubt that in this way the open spaces in the dam have been filled

firmly with gravel far back from the front of the dam. This is proved by the fact that about 100 cubic yards of gravel found place in each section five feet wide clear of timbers. The sheet-piling and all the original timbers of the dam are thus enclosed in wet gravel and hence are absolutely imperishable. The sheet-piling has a front support in the timbers of the dam every twelve inches and, even if the water could penetrate through the gravel, it would present a barrier many times greater than the pressure that would ever be exerted against it. If this work had been done when the dam was built, no serious difficulty would ever have been had with it, and probably no serious leak would ever have appeared. In this heretofore untried way, and yet in a way that hydraulic engineering pronounces the most effective, Mr. Herschel has succeeded in preserving one of the large dams of the world for many years to come. In the spring of the year, when the ice above the dam gives way and the swollen floods come rushing down from the north, the scene at the dam is a magnificent one. The huge masses of broken ice plunging and crowding over the crest of the dam, the roaring, boiling waters, logs and ice-floes leaping up many feet into the air in their recoil from the plunge, and the great volume of water pouring over unceasingly in one wide, unbroken sheet, with a loud roar, make up a scene that thousands gaze upon from the river banks with admiration.

The system of canals as first constructed differed materially from the present system. There was an upper level canal taking water from the bulkhead at the dam and extending nearly south for

about half a mile. It was 140 feet wide at the upper end and gradually narrowed at the lower end to a width of 80 feet, and was from 15 to 20 feet deep, with substantial walls 9 feet thick at the base. Parallel to this canal was a raceway canal on a lower level 400 feet distant from the upper canal. Between the canal and the raceway were many passages for water, which was sufficient in each instance to turn a powerful water wheel. The raceway received the water from these passages and conveyed it back toward the dam, where it was discharged into a second canal, leading in a southerly direction, from which the water was distributed to mills on the lower side and then discharged into the river. Locks for the passage of boats connected all these canals with the river. The survey of these canals began on July 8, 1847, and the first stone was laid in the walls of the canal first made on December 6, of the same year.

During the building of the dam and these canals contractors for the Hadley Falls Co. were making a reservoir on the hill, 1,020 feet distant from the river and 67 feet above the top of the dam, and capable of holding about 3,000,000 gallons of water. In the construction of this reservoir 500 men were at one time employed, the walls were made 15 feet high and 40 feet thick. Water from the river was forced into the reservoir through a 13-inch pipe by two pumps located above the dam. The first water was pumped into it on October 16, 1849, and the whole work pertaining to it was completed in the following November. Pipes connecting with the water in this reservoir

were then laid through the town, which received its water from this source until 1872, when the growth of the town made a new supply requisite. Before the completion of the dam the prospects of the village were so promising that separation from the town of West Springfield was the common talk. On December 24, 1849, a meeting was held in the village to consider the subject, and it was decided to ask the next legislature to divide the town and call the new town "Hampden." The names of the village, then current, were "Ireland Depot," "New City," and "Hampden City." The legislature incorporated the town March 14, 1850, and called it, not Hampden, but Holyoke, the name being taken from a mountain of the same name, a few miles up the river, which was itself named from Elizur Holyoke, an early and prominent resident of the Connecticut river valley.

At the time the dam and canals were building, Baptist village, two miles distant, was losing its importance hereabouts. That village then had two stores, a tavern, a sash and blinds manufactory, a shoe-maker, two doctors, a wheelwright, a blacksmith, a painter, a tailor and two churches. Holyoke, soon after its birth, absorbed all these, except one church. In 1850 it was a "booming" town. A census was taken in the spring of that year and its population was found to be 3,245, half of that number being workmen. One factory had been already built and another was in process of construction; tenement houses had been erected by the Hadley Falls Co.; gangs of men with teams were grading the surface of the ground and laying out streets; and private individuals were

building many substantial houses and stores. Business and professional men were coming in, and in the summer of 1850 there were, in the town, thirteen persons and corporations, each paying taxes on \$10,000 and over. A man worth that amount in those days was rich. In the fall of that year the Holyoke House, a fine hotel, and one of the wonderful enterprises of the town, was opened to the public. In that year also, on March 30, the first water wheel, run by water from the great dam, was set in motion, and on April 23, the first work was done in factory No. 1 of the Hadley Falls Co. That company had also, a blacksmith's shop, a machine shop and an office, besides the mill that had been built, and had bought a fire engine for the service of the town. The organization of the Lyman mills was already under discussion. Fifty-nine lots of land had been sold by the company and individual enterprise was on the alert. In 1851 the Hadley Falls Co. had two factories, each containing 18,000 spindles, machine, blacksmith and pattern shops, a foundry, offices and several boarding blocks. Gas works were completed by the company in September, 1852, and gas mains were laid throughout the village.

The prosperity of Holyoke continued to increase without a check until 1855, when the census showed that the population was 4,631, a gain of 1,386 in five years. There were then three cotton mills in the town, together employing 458 men and 1,035 women. Those mills used in one year 2,000,000 pounds of cotton and their yearly product was 13,000,000 yards of cloth, the gross value

of which was \$1,161,178. Also included in the town's yearly product for the year ending June 1, 1855, were the following articles: Yarn valued at \$20,000; machinery worth toward \$400,000, made by about 400 men; cards for cotton and woolen mills worth \$30,000; piano and card wire valued at \$15,000; power loom harnesses, \$8,000; power loom reeds, nearly \$2,000. The mill of the Parsons Paper Co., which had been in operation but ten months, had used nearly 200 tons of stock and manufactured \$50,000 worth of fine writing paper. The beginning of Holyoke's chief industry,—paper-making—was the organization of that company in 1853, with a nominal capital of \$60,000 for the manufacture of fine writing paper. Such was the rapid prosperity of that company, that in 1856 a second mill was built and their business was doubled. In 1857 the Holyoke Paper Co. was organized with a capital of \$300,000, also for the manufacture of fine writing paper. The cotton manufacturing industry was started in 1854 by the Lyman mills, the capital stock of which is \$1,470,000. The wire works now owned by George W. Prentiss & Co., were established in 1857, for the manufacture of refined iron wire.

The hard times which culminated in the panic of 1857 temporarily checked the growth of Holyoke. There was some stoppage of work and workmen were idle on the streets. The Hadley Falls Co., which had bought the property of the Hadley Falls Machine Co., and the Hadley Falls Thread Co., had been extravagant in its expenditure of money, to say nothing of the great loss of



DWIGHT STREET.



the first dam, and it became apparent, as the financial stress of the times progressed, that it must fail. In May, 1858, the Supreme Court placed its affairs in the hands of a trustee on petition of its creditors, and on February 10, 1859, the property of the company was sold at public auction for \$325,000 to Alfred Smith of Hartford, who bought for himself and some associates, who were soon incorporated as the Holyoke Water Power Company. This company, with plenty of capital for the purpose made many improvements, lengthened the canals, sold land and leased mill powers to such extent that the little town, soon budded into a large manufacturing village and, in less than forty years, blossomed into a busy city of nearly 33,000 people.

A most striking view of the growth of Holyoke may be had from an examination of the figures of the census. In 1845 there were only fourteen houses where almost the entire city now stands. The people in the town in 1850 numbered 3,245; in 1855, 4,631; in 1860, 4,997; in 1865, 5,648; in 1870, 10,733; in 1875, 16,260; in 1880, 21,915. It is a pretty "rapid" town that gains, in one instance, 40 per cent. in population in five years, in another half decade 60 per cent., and in still another, 100 per cent.

There is not another city in the East that can show such swift and at the same time substantial growth as Holyoke has enjoyed during the two decades or more since the war. In a few years it became the greatest paper-making center of the country. It has now twenty-four large paper-making

corporations, one having the largest paper-mill in the world. A long established cotton manufacturing company employs one thousand and three hundred operatives. A company manufacturing worsted goods employs one thousand persons, the two mammoth thread-mills have some one thousand names on the pay rolls. The Unquomunk silk works, which were destroyed by the great Mill River flood of 1874 were relocated in this city. New mills, factories and workshops are in course of erection all the time. Every year is adding to the aggregation of capital that here finds profitable investment, and to the army of skilled artisans whose deft hands win ample wage. The diversity of the manufacturing interests represented is remarkable, and covers a wide range of productions that is annually extending. They are distributed to every part of the globe. Within a few years the lumber trade has come to be very active and has assumed large proportions. Immense lumber drives are sent down the river from the thick forests on its headwaters, where the trees are felled during the winter. These logs are held in the booms above the dam, and furnish a cheap and convenient supply to the lumber mills in this section.

Let no one imagine, however, that the city of Holyoke is simply the seat of a thirty-thousand-horse water power and numerous extensive and flourishing manufactories. It is a delightful place in which to live. The city is self-contained and complete in all things that make life rational and worth the living. In building up the great and prosperous business interests that have made it

famous, its people have not been oblivious to the significant moral and social demands created and imposed by New England civilization. The city is new without being raw—though there is much that is rare. It is modern in every essential regard. Its streets intersect at right angles, all its improvements, public and private, are of a substantial and permanent character, and mushroomism is conspicuous by its absence. Brick and stone are the prevailing building materials, and some of the most sightly and solid specimens of architecture in the state adorn the thoroughfares of Holyoke, notable among them the elegant City Hall. The number of beautiful private residences framed by cultivated lawns is a distinguishing feature, and manifold signs of prosperity are matched by the countless symbols of intelligence, culture, and refinement that rises on every hand.

The attention given by the people of Holyoke to education and the ample provision they have made for it are commensurate with the importance that has always attached to it throughout New England. The public-school system in vogue here is of a piece with that which generally prevails in Massachusetts, injected, perhaps, with a practical spirit and element superinduced by the pronounced industrial character of the city. It is in charge of a school committee, of which the mayor is chairman, composed of one member of each of the seven wards and two at large; there are also a superintendent and two truant officers. The schools are carefully graded, presided over by earnest, competent teachers, are well attended and generously maintained. For the most part the school-

houses are new, essentially modern in design and character, literally furnished with the most approved apparatus, and their accommodations adequate to the requirements of the present school population.

All the principal religious denominations common to this part of the country are represented here and have reared their altars of worship. In point of architectural appearance and interior appointments, the most of these church buildings will compare favorably with similar edifices in any city of equal size in the State. There is also a large number of societies of a benevolent, beneficial, and literary character, which are liberally supported, and whose unostentatious work is a valuable force in furthering the specific purposes for which they exist and in promoting the general welfare of the community. The educational equipment of no Massachusetts town is complete without its public library. It belongs in the same category as the church and school-house, and one of the fixed and indispensable institutions is its library. The Holyoke public library was incorporated April 22, 1870, and has cheerful and attractively furnished rooms in the City Hall building. It contains upward of twelve thousand judiciously selected volumes, which are being constantly added to, and which are absolutely free to the public, with privilege to take books to their homes; it is very generally patronized by our citizens, especially the younger generation.

The water-works system is confessedly one of the best and most efficient of any city in New England, the tariff is moderate, and the water is both pure and abundant. The works were

completed in the summer of 1873, are constructed in the most thorough and substantial manner, the principal supply main and the permanent street mains being cast-iron, and the latter extending to every portion of the city. Ashley's and Wright's ponds, situated within the corporation limits, and but three miles and a half from the City Hall, are the chief sources of supply, which was still further augmented in 1884 by turning several mountain brooks into the main pipe. It is estimated that the supply is adequate to requirements of double the present population.

The arrangements for the subjection of fire are complete, and the equipment is thorough and of the most improved character. A competent force of zealous and experienced men, four steam fire-engines with the usual modern accessories, the system of city hydrants, together with that of the many mills and manufactories, in conjunction with a general telephone and fire-alarm service, render this department practically perfect.

The administration of municipal affairs is vested in a Mayor, Board of Alderman, and Common Council. Election is held on the first Tuesday in December of each year, and the government is formally organized on the first Monday of the following January. The Board of Alderman is composed of seven members, one from each ward, and the Common Council of three from each ward. The first city government was organized in January 1874, and the first Mayor of the city was Hon. W. B. C. Pearson, now judge of the police court, who held the office three years. The

succeeding Mayors have been Hon. William Whiting, at present a congressman from the 11th District, R. P. Crafts, William Ruddy, F. P. Goodall, James E. Delaney, and Dr. James J. O'Connor, the present executive,—this being his second year.

By those living not far from Holyoke, and knowing but little about its industries, the question has been asked: "Why is every one going to Holyoke?" We have not only answered the question, but have spread before the reader the reasons why one SHOULD go to Holyoke. The payment of several hundred thousand dollars every month, most of the amount to be expended in the city by those receiving it, makes the city a fine place for the merchant. All the trades, besides, are in great demand, the best quality of work in each being especially sought for. Much money has been made in land speculation and by those who have built houses to rent or sell, and the opportunities for making money in the same way are just as good as ever. The account of Holyoke's development from nothing to be one of the important cities of the world has been a ceaseless and continual repetition of the story of business venture, quick action, shrewd judgment, skill, economy, and aggressive conduct. The industries that have been built up here, stand, each one of them, upon a firm foundation, with every prospect of growing to do still more and still better work. Locations for new manufactories are plenty and their desirability is in most respects unequaled. The city is still in its childhood, and grow it will, and grow it must, without interruption of its prosperity.

INDUSTRIES.

As may be expected from the large amount of fine paper made in Holyoke, it is over half the amount of fine paper made in the United States, and one-half of the remaining quantity is made in Western Massachusetts outside of Holyoke, so that three-quarters of all the fine paper made in the United States is made within a territory of seventy-five miles square.

Where does all this paper go to, is it asked? Only an inconsiderable amount goes to foreign countries; the principal portion of it remains in the United States and is consumed here. It is difficult to find a single town in this nation where writing paper cannot be found with the water mark of some Holyoke mill upon it.

The quality of the paper made in Holyoke is unexcelled anywhere on the face of the globe. We think we are warranted in going a step further than this and in saying that the best paper made here has not elsewhere its equal in quality. A well-known firm in New York that deals in

the best stationery to be obtained, wherever it may come from, at home or abroad, gets all its paper from the largest producer in Holyoke. The customers of that firm are people who want the BEST, the price being a secondary consideration, so that they care not whether their stationery comes from England, France, Germany, or the United States, so long as there is no better. This supply of the best paper to such customers in this country has, until lately, come from Aberdeen, Scotland, where the grade of the paper made is certainly admirable. The fame of Holyoke's excellence in paper manufacturing processes has penetrated to remote parts, and it is a frequent occurrence for men from Germany and France to come here and work in one or more of the paper mills for two or three years with the object of learning wherein it is that Holyoke stands so high in the paper goods that are made. The English are not given to doing this, for John Bull's strongest peculiarity is expressed in, "I know it all, and you can't tell me anything." The fact remains, however, that he has lost in this country his prestige as a paper manufacturer, and that Brother Jonathan, the child who, nevertheless, takes unbounded pride in his parentage, has come, by improving upon the faculties inherited from across the water, to look upon the mother country from behind in this industry and to stand in the front rank of the van of the world's paper manufacturers. The nominal capital of these mills is \$3,159,000, but the capital actually invested amounts to \$6,000,000 at a moderate estimation. Many of the companies have made so much money within a



COMMERCIAL HOTEL,—DELANEY'S MARBLE BLOCK.



few years after beginning business that the profits were often used to pay for new buildings, new machinery, etc., so that the capital stock has remained the same. In the great incorrectness of the last census relative to the paper-making industry, it is hardly worth while to make with it any comparisons of Holyoke paper business. Besides the paper mills, there are eight other companies in the city engaged in making pulp, envelopes, glazed paper, paper filler, paper bags, stationery, etc. The shipping conveniences for all these mills, as well as cotton, woolen and other mills in town, are of the best. Branches of the railways have been built to all the mills, so that stock has but to be unloaded from cars upon the warehouse platforms, and the operation reversed with the finished product.

Taking up the manufactures of the city, one of the first was that of E. Whitaker, who, in 1852, began the manufacture of loom and dresser reeds, a business that he has continued, without break, to the present time.

The first one besides the Hadley Falls Company to use the water power controlled at this place, was the Parsons Paper Company, which opened the paper-making industry in Holyoke in 1853, with a capital of \$60,000, under the business management of Mr. Joseph C. Parsons, one of the prominent owners. So successful was this enterprise for that time that in ten months 200 tons of stock had been used and fine writing paper made worth \$50,000. The pressure of the expanding business soon required another mill, which was built in 1859. In November, 1860, one of the

mills was burned at a loss of \$60,000, but the insurance of \$30,000 helped to erect another building. So remarkable has been its prosperity that, while the capital stock remains the same, the surplus capital is \$600,000. The daily product of paper was at first two and one-half tons, a very large quantity at that time, but now, by the erection of new mills eleven to twelve tons are made every day. These kinds of paper are made: Fine writing, envelope, bristol board, bond, bank note, and first class ledger. The goods go to all parts of this country and to South America and Australia. Three hundred and fifty hands are employed at a monthly pay roll of \$10,000. Eight mill powers and four steam engines are used. John S. McElwain, agent, E. P. Bagg, treasurer, and E. C. Weiser, secretary.

The Lyman mills corporation was organized in 1854 with a capital of \$1,470,000. Two of its three mills were erected and operated for a short time previously by the Hadley Falls Company. Lawns, sheetings and drills are made in these mills to the amount of 80,000 pounds, or 400,000 yards per week. The business has greatly expanded, especially of late years. One mill was extended in 1873 to make room for 20,000 spindles, and recently 5,000 spindles more were added, so that 80,000 spindles are now in use in the mills. Large quantities of the drills are sold in China where the English manufacturers have been driven out of competition by the better and cheaper goods of this and other manufactories. The mill powers used are 21½, hands employed, 1,300 and more,

and the monthly pay roll is about \$28,000. The corporation owns seven large brick blocks, containing 205 tenements. A slight idea of the area of the mills may be obtained from the statement that there are a little more than eight and one-half acres of flooring in all of the buildings. Theophilus Parsons, treasurer, E. Lovering, agent.

Holyoke's second paper-making company was the Holyoke Paper Company, which was organized in 1857 with a capital of \$50,000. The product at first was one ton per day, but the business increased so rapidly that in 1866 the buildings had to be greatly enlarged and the facilities for manufacturing increased. The paper made is animal sized, loft dried, fine writing paper in the varieties of American Linen, Bankers' Parchment, bond and envelope. Seven and one-half tons of these papers are now made every day. Three hundred hands are employed at a monthly cost of \$10,000 in wages. The capital stock was increased in 1865 to \$300,000, which, however, is less than the capital actually invested in the business. All the power used is derived from 8½ mill powers. This company received a gold medal at the Paris exhibition in 1878 for bond and linen paper, and the highest medal at Melbourne, Australia, in 1881, for the same kinds of paper. Its trade extends far and wide, not only in this country but in South America and elsewhere. O. H. Greenleaf, president and agent, O. L. Greenleaf, treasurer.

The first iron works were the wire mills of Geo. W. Prentiss in 1857, subsequently and at

present owned by Geo. W. Prentiss & Co. One-half ton of wire per day was made at first, but the product has now come up to five tons. Wire of every description and for all purposes is made from Swede's and charcoal iron, Siemen-Martin and Bessemer steel. Special attention is given to wire fine in size and quality, wire of the smallest size being three and one-half thousandths of an inch in diameter and weighing five and one-third ounces to the mile. Much of the small wire made by this manufactory is used in making artificial flowers, and the trade extends to all the limits of the United States. Eight men were employed in 1857, but the number has increased to 65 men who receive \$700 per week. Two mill powers are used.

In 1863 the Hadley Thread Company was organized with a capital of \$600,000, and began business with 16,000 spindles. This number was increased in 1877 by 11,488 spindles, which, with other additions, make the present number 42,784. The weekly pay roll is \$4,900 for 721 hands. Eleven mill powers are used. The goods manufactured are as follows: Spool cottons, fine yarns, warps, harness and seine twines, shoe threads, etc., the annual product being 1,300,000 pounds. The mills contain over four acres of flooring. The trade in seine twines, especially, is extensive, and the yarn is of such fine quality that it is used in making silk-mixed goods. Arthur T. Lyman is treasurer, Wm. Grover, Agent, and C. L. Farrington, Paymaster.

The woolen manufactory of Beebe, Webber & Co. was also started in 1863, being a partnership

with about \$200,000 capital. So rapid was the progress of this enterprise that the business doubled two years after it began. The annual product is 600,000 yards of fancy cassimeres. From 125 to 150 hands are employed and the monthly pay roll ranges from \$3,500 to \$5,000.

The third enterprise of 1863 was the Holyoke Machine Company, which first had a capital of \$40,000. This increased in 1871 to \$80,000, and in 1872 to \$150,000, again to \$300,000 the present capital. The value of the first annual product of its business was \$60,000, and fifty men were employed. The present annual product is not far from three-quarters of a million dollars' worth of machinery, and 325 to 350 men are employed, with a monthly pay roll of \$14,000. The company has large machine shops and foundries; and manufactures turbine water wheels, paper machinery, hydraulic presses, and other machines of various kinds. It makes a specialty of water wheels and machinery for paper mills, and in this manufacture has won a world-wide reputation. Finishing machines have been shipped to Scotland, France and Germany. N. H. Whitten, president, S. Holman, treasurer, H. J. Frink, agent.

The New York Woolen Mill was built in 1864 and sold to A. T. Stewart of New York in 1870, at a time when he began to make some of the goods that he sold. In this mill were made 360,000 yards of cloth per annum, but in 1880, after Stewart's death, Judge Hilton, to whom the property was given, discontinued the business as unremunerative, and after remaining idle for several

years it was purchased by Connor Bros. in the spring of 1882, and is now successfully run by them in the manufacture of satinetts. They also manufacture wool extracts, shoddy and flocks and produce 600,000 yards 6-4 cloths per annum, employ 375 hands with a monthly pay roll of \$9,000.

Paper-making in Holyoke held out such promising prospects that in 1865, William Whiting, who had been a clerk for the Holyoke Paper Company, organized the Whiting Co., in association with L. L. Brown and E. F. Jenks, with a capital of \$100,000. About three tons of paper were made at first, but the trade soon became so extensive that a second mill was built out of the profits of a few years. The present nominal capital is \$300,000, but the actual capital invested amounts to over a million dollars. The finest kinds of paper are made by this company, including bond, envelope, ledger, bristol board, machine hand-made, and every other variety of fine writing paper. Tiffany & Co. of New York, dealers in the finest stationery sold in the United States, or, indeed, in the world, obtain all their paper from the Whiting Paper Co. This company has a third mill at Wilbraham in this state, but the business is operated here. They are now making twenty-three tons of the paper above mentioned every day. About 850 hands are employed and the monthly pay roll is very nearly \$20,000. L. L. Brown, president, Wm. Whiting, agent and treasurer.

Another of Holyoke's large manufactories is that of the Merrick Thread Company, which came from Mansfield, Ct., in 1865, for better accommodations for its rapidly increasing business. The

capital in 1865 was \$200,000, which was enlarged in 1868 to \$350,000, and recently increased to \$500,000. Six cord, soft finish, satin finish spool cottons and fine yarns are made, the value of the yearly product being a million dollars or more. About 4,000,000 dozen spools of cotton are made during the year. Over 1,100 hands are employed, and these receive upwards of \$26,000 per month. The furnishing of a thread and bobbin fitted for use in the shuttle of a sewing machine, thus avoiding the necessity of fitting the iron bobbin in the usual way, has grown to be quite an important branch of the business, which this company controls under contract with the patentee. L. R. Hopkins, president, Timothy Merrick, treasurer, C. W. Rider, secretary.

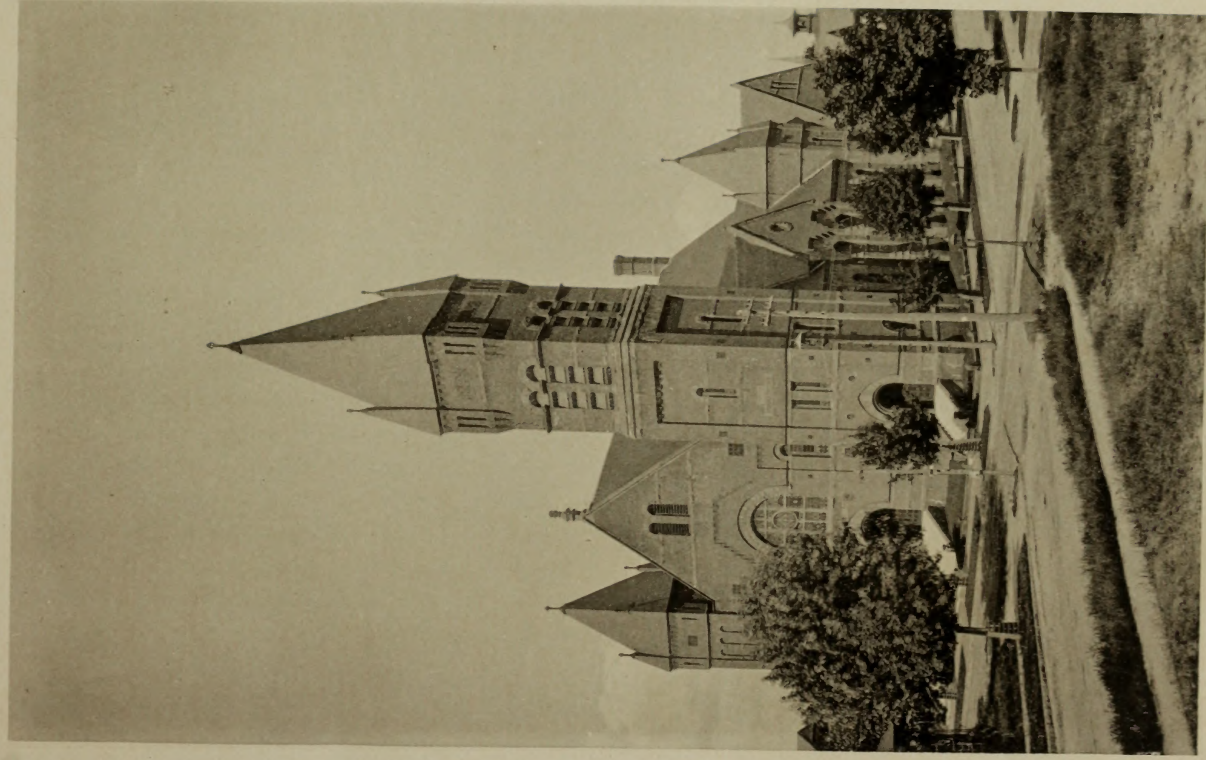
The Germania Mills, for the manufacture of fine beavers, chinchillas, castors, overcoatings and suitings, was organized in 1865 with a capital of \$300,000. The business became prosperous under shrewd and economical management, so that a few years ago it was doubled. The company manufactures goods of very fine quality, which, through its agent in New York, have a wide sale. They produce annually 250,000 yards 6-4 cloth. Over 300 persons find employment in the mills and the monthly pay roll is \$9,500. Herman Stursburg, Jr., treas., Wm. Maur, sec'y., L. Bume, Supt.

The year 1866 developed three new paper companies, the Riverside, the Franklin, and the Valley. The Riverside Paper Company started with a capital of \$100,000, and the pressure of its expanding business raised it to \$150,000 in 1870. Two tons of paper were made each day at the

start, but the product was soon doubled. Two hundred hands are employed at \$5,000 per month. Three mill powers are used for 24 hours. The very finest kind of writing, linen and ledger papers are made. J. H. Appleton, president and treasurer.

The Franklin Paper Company was organized by the present owners, and the capital nominally made \$60,000, though its business represents much more. It formerly made great quantities of collar paper, and at one time used for its cloth-lined paper 1,000,000 yards of muslin annually. Since 1876 the mill has manufactured fine book, writing and envelope paper, white, tinted, and in colors. One ton per day was made in 1866 and for several years thereafter, but the calls for more paper became so loud that the buildings had to be enlarged and the daily product was made three tons. Seventy-five hands, two mill powers, and two engines, 100-horse power, and 40-horse power, do the work, the pay roll is \$2,500 per month. J. H. Newton, president, F. H. Chamberlin, treasurer.

The Valley Paper Company has a capital of \$200,000, which was, on account of its growing business, made necessary by adding to its original capital of \$125,000. The mill was built for a two-ton capacity, but it was enlarged several years ago so as to make six tons per day. Three hundred hands find employment in the mill at a monthly pay of \$7,000. Four mill powers, 100-horse power engine and two small engines are used. The paper made is fine writing, linen, envelope and bristol board. Hiram Smith, president, A. W. Esleeck, agent and treasurer.



SECOND BAPTIST CHURCH.



Following 1866 there was an interval of three years during which there was hardly a new enterprise in Holyoke, but in 1869 began an accelerated march of progress in this respect that is most remarkable. In that year the Albion Paper Company was organized with a capital stock of \$60,000, and began to manufacture paper at the rate of one and one-half tons per day. Gaining on this product it was necessary to build a new mill in 1879 and increase all the facilities for carrying on a larger business. This company now makes fifteen tons of book paper and engine-sized flats every day. Twelve mill powers are used, and 120 hands are employed with a pay roll of \$5,000 per month. E. C. Taft, agent and treasurer.

The Holyoke Warp Company was organized in 1869, and has a capital stock of \$60,000. It manufactures plain and fancy warps, and makes 2,000 pounds per day. From 100 to 125 hands are employed with a monthly pay roll of \$3,500. James Renfrew, Jr., president, J. L. Burlingame, agent and treasurer, H. H. Smith, paymaster. In the same year the Holyoke Steam Boiler Works came into existence for the purpose of making steam boilers, rotary bleachers, water and oil tanks, and doing heavy plate iron work. The company employs about 50 hands. Pay roll \$1,500 monthly.

The year 1870 saw another new paper company, which took the name of the Union Paper Company. The capital stock was \$200,000, and three tons of paper per day were made on the start. But the business increased considerably in the past few years, so that large additions both

in machinery and buildings had to be made. Loft dried, engine sized writing papers are made, and chromo papers are a speciality. Five tons of paper made daily and 150 hands are employed with a pay roll of \$3,800 per month. L. J. Powers, president and treasurer, E. Dickinson, agent.

In the same year, 1870, the Springfield Blanket Company began to make horse blankets. It has a capital of \$150,000 and is one of the largest establishments of the kind in the country. 500,000 blankets are made annually. About 400 men and women work in the mills and receive \$8,000 per month. W. H. Wilkinson, treasurer, E. H. Wilkinson, superintendent.

Another new paper company came into existence in the next year, 1871, the Crocker Manufacturing Company, which organized with a capital of \$60,000. One machine was used at first, but in a few years the capacity of the mill was doubled. In 1878 the company bought the old Albion mill and employed it in the extension of its business. It engages largely in the manufacture of a peculiarly colored and ornamental paper, made by a patented process, which it owns, the paper being used for safety tickets and other purposes. Besides the specialties in colored papers, engine-sized flats are made. The capital has been raised to \$100,000. Employs 75 hands with a monthly pay roll of \$2,500. C. A. Crocker, treasurer, J. W. Mullen, Superintendent.

The Beebe & Holbrook Company of 1872 grew out of the Hampton Paper Company of 1871, and started as a partnership with a capital of \$100,000. In 1878 it was incorporated and the

capital raised to 150,000, though that amount does not represent all the capital that is really invested in the business. The business called for a ton and a half per day at the start, but it has gradually grown to five towns at present. Loft dried, animal sized writing paper is made in all varieties, flat and folded, white and tinted. A specialty is the very finest kind of wedding papers, in which this company has an excellent trade. The company's first customers have continued to trade with it ever since. 150 hands are employed at a monthly pay of \$5,500.

The Massasoit Paper Company, originally the Greenleaf & Taylor Company, built its first mill in Huntington in this State. In 1870 it changed its name to its present one, and in 1872 built its Holyoke mill and increased its capital stock to \$300,000. Four mill powers are used, and 170 hands receive \$6,000 per month. The business has grown from a ton and a half of paper per day to six tons at the present time. E. C. Rogers, agent and treasurer, C. B. Wells, superintendent.

In the first year of the city, 1873, the Farr Alpaca Company was organized with a capital of \$250,000, though \$50,000 more has subsequently been put into the business. About 350,000 yards of worsted dress goods per year were made at first, but the business grew so that the yearly product has now come to be 6,000,000 yards. Six mill powers are used and the monthly pay roll is \$32,000 for upwards of 1,000 hands. Timothy Merrick, president, J. Metcalf, treasurer, H. M. Farr, agent.

The Excelsior Paper Company in the same year, was organized and proceeded to manufacture

principally book paper, of which it now makes three tons per day. They employ 50 hands and the pay roll is \$1,500. Owners, Geo. R. Dickinson, D. M. Dickinson, John E. Clark. The Massachusetts Screw Company also, was established in 1873, with a capital stock of \$50,000. It turns out a product worth \$70,000 and over every year. Employs 65 hands, with a pay roll of \$1,500. John C. Newton, President, D. H. Newton, Vice President, James S. Newton, Treasurer.

In 1874 the Unquomonk silk mill, which was established in Haydenville, in this State, in 1839, and which lost its property by the breaking away of a dam in 1874, moved to this city. It manufactures satin sleeve linings, silk serges, silk and mohair braids, machine and button-hole twist, sewings, organzine and cassimere sewings. Over 3,000 pounds are made every month. About 300 hands are employed at \$5,000 per month. William Skinner & Sons are the proprietors.

The National Blank Book Company was organized in New York in 1875 as the J. G. Shaw Company, and was changed in 1880 to its present name, the manufactory being removed to Holyoke in the summer of 1881. It occupies two floors in the Water Power Company's Cabot street building, each 320x75 feet, making one of the most convenient and commodious blank book manufactories in the country. Blank books of every description are made by this company, and its business is far reaching. Employ 175 hands who receive \$6,000 per month. Thomas A. Mole, President, Roswell M. Fairfield, treasurer, H. S. Dewey, Agent.

The works of the Deane Steam Pump Company were moved from Springfield in 1875 to the shops of the Holyoke Machine Company, where business increased so rapidly that it outgrew the accommodations and had to be put in new quarters. In 1879 the present company was incorporated and began business here in new shops. The capital stock is \$200,000. It is a prominent feature of this company to build pumps to order for difficult and special duties,—for use, for instance, on the Mississippi river banks, for mining and deep well purposes, for artesian wells, and for town and city water works. Employs 235 hands. Monthly pay roll, \$6,000. Stephen Holman, president, Charles P. Deane, treasurer.

The Newton Paper Company which had been a co partnership since 1873, was organized in 1876 as a corporation with a capital of \$24,000. The business of the company has doubled since that time and the daily product is now fourteen tons of roofing, building, carpet lining and heavy wrapping papers. Fifty hands are employed and its pay roll is \$2,500 per month. Moses Newton, president, James Ramage, vice president, George A. Clark, treasurer.

A remarkably successful enterprise has been the Henry Seymour Cutlery Company, which was organized in 1839 in New York, but came to Holyoke in 1878. Capital stock \$25,000. The wisdom of the move is apparent when it is known that the business of the company has doubled since it came here. Its trade is now almost world wide, and goods are sent to Russia, Ireland,

Germany, Australia, Sandwich Islands, South America, Africa, etc. One hundred and fifty different kinds and sizes of scissors and shears are made,—2,400 to 2,600 dozen monthly, the smallest being 4-inch pocket scissors and the largest 16-inch tailors shears. Seventy-five men are employed. A recent specialty is the manufacture of sheep shears, this company being the only one in the United States that makes them. The supply has previously come from England, but it is gratifying to learn that the Seymours are now making sheep shears that are superior to the English shears and which can be also sold cheaper by 10 per cent. Henry Seymour, pres., R. H. Seymour, treas.

The manufacture of wire cloths for Fourdrinier paper machines and dandy rolls, duster and cylinder wires, was begun in 1878 by Buchanan, Bolt & Co., who have made the business a success.

In 1878 were completed two of the finest buildings in the city, the Windsor Hotel and the Opera House, both owned by Hon. William Whiting. The Windsor is an elegant hotel and first-class in every respect, and the Opera House has no superior in the western part of the State.

In the next year the Wauregan Paper Company was established with a capital stock of \$100,000, and began with a daily product of four tons of paper. Five tons are now made, the paper being fine book and engine-sized writing. Three thousand dollars are paid to 110 hands every month. J. H. Newton, president and treasurer, E. T. Newton, secretary, T. H. Spencer, Office Manager.

The year 1880 gave a wonderful stimulus to the paper-making industry in Holyoke, for seven

new paper companies were organized. The Chemical Paper Company came out first, and had a capital stock of \$80,000, which the pressure of business soon made it necessary to increase to \$250,000. Sixteen mill powers are used and the present daily product of the mills is twenty-two tons of paper. Some days the product goes up to twenty-six tons. The monthly pay roll is \$8,000, and the number of hands 200. This company has a pulp mill connected with the other mills, which makes seven tons of pulp per day. The papers made are as follows: manilas, rope, print, tag and box papers, card middle, and envelope papers. James Ramage, president, J. C. Newton, vice president, George C. Gill, secretary, Moses Newton, treasurer, and agent.

The Winona Paper Company, organized in the same year, and started with a capital stock of \$60,000, which in July, 1882, was raised to \$150,000, because of a great expansion of business. Five tons of paper were made at first, but, with the increase of capital came greater facilities for doing the expanding business, and twelve tons is the daily product now. The papers made are flat and ruled writings. Employs 135 hands. R. M. Pulsifer, president, (Boston), B. F. Hosford, treasurer.

The Syms & Dudley Paper Company, another of the 1880 companies, makes book and engine-sized flats, producing thirteen tons per day. The capital stock is \$150,000, employs 150 hands who receive \$4,500 monthly. Wm. Whiting, pres., Geo. R. Dudley, treas., Wm. E. Syms manager of mill.

The Nonotuck Paper Company, same year, made five tons of paper per day, but in six months

was turning out ten tons. Its capital has remained the same, \$70,000. Employs 200 hands, and pays \$5,000 per month in wages. The goods made are engine-sized writing and envelope papers, colored flats, mediums and book papers. Aaron Bagg, Jr., president, J. S. McElwain, agent, Wm. H. Heywood, treasurer, Henry E. McElwain, secretary.

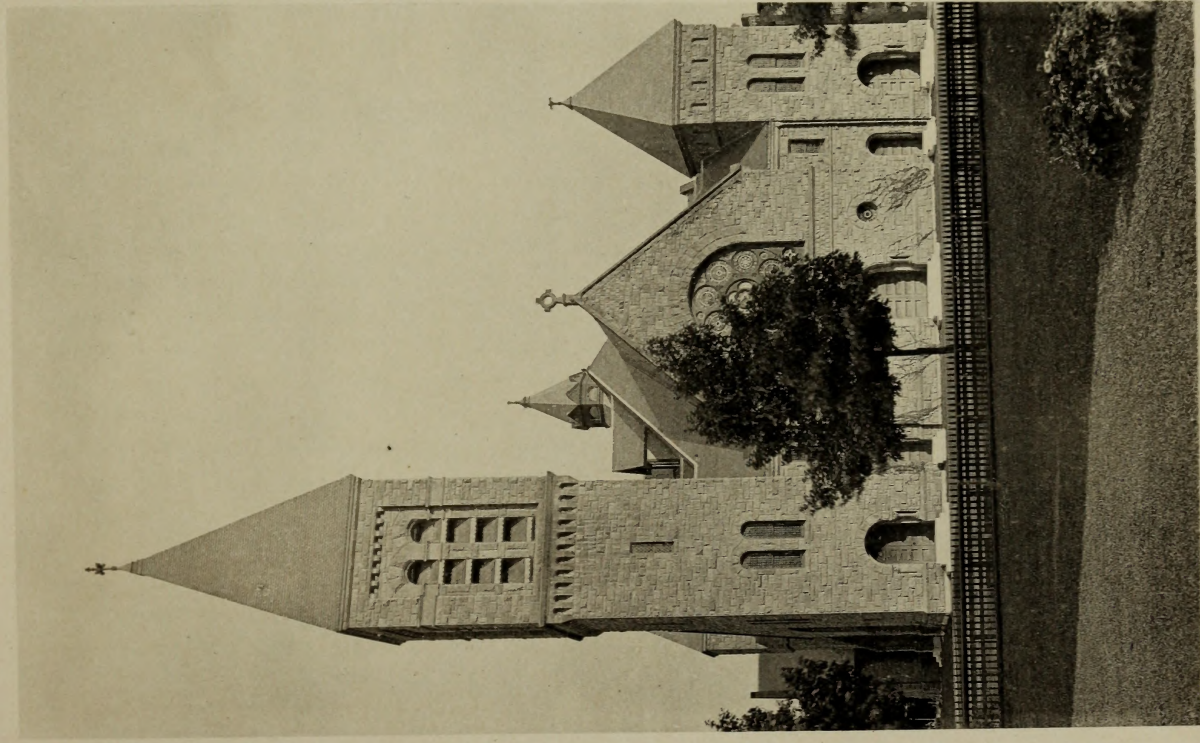
The Dickinson & Clark Paper Company of 1880, makes book paper and super calendered and engine-sized flats, producing in one day four tons. Two and one-half tons were made at first. The fifty-five hands employed receive \$1,600 per month. Geo. R. Dickinson and J. E. Clark, owners.

The Holyoke Envelope Company of 1880, also, is one of the prominent envelope manufacturing companies of the country. It employs 210 persons and pays over \$6,000 per month. James T. Abbe, president, George N. Tyner, treasurer.

The Hampden Glazed Paper and Card Company followed in 1881, making glazed paper and card board, capital stock \$56,000. G. F. Fowler, president, F. H. Fowler, secretary and treasurer.

The Whitmore Manufacturing Company was established in 1881 with a capital stock of \$25,000. It manufactures card board, glazed and lithograph papers, doing work that is not excelled any where in the country. Employs 42 hands and its pay roll is \$2,200 per month. William Whiting, president, F. D. Heywood, treasurer.

Messrs. Chadwick & Chadwick, an English firm, established themselves late in the year 1882 in



SECOND CONGREGATIONAL CHURCH.



the west wing of the Water Power Company's building, on Cabot street, occupying two entire floors and basement, and manufacture a fabric in imitation of seal-skins. Employs 70 hands at a monthly pay roll of \$2,800.

The Merrick Lumber Company, capital stock \$75,000, lumber merchants, contractors and builders, have a steam planing and saw mill, and manufacture doors, sash and blinds. They employ 60 men and pay \$3,000 per month in wages. T. Merrick, president, E. Bradley, treasurer. E. Chase & Sons, established in 1859, and Watson Ely & Son, are two other firms of lumber dealers.

Many miscellaneous firms have sprung up for doing various kinds of business. The Tuttle Rubber Works, J. H. Tuttle proprietor, manufactures Jenkins & Frink's pump valves, washers, packing, rubber balls, wagon springs, shaft rubbers, etc. Fenton & Dunn make all kinds of carriages and wagons. J. & W. Jolly, machinists and blacksmiths, do a general jobbing, paper mill repairs being a specialty. John C. Smith, machinist, has the same line of business, as also, has the Perkins machine shop. The Holyoke Woven Wire Mattress Company makes wire mattresses, as its name indicates. Graves & Kinney are brass founders and make brass furnishings, street numbers, croquet hoops, harness castings, etc. Lithographing and engraving is done by Henry Thomas. B. F. Nichols top roll coverer and manufacturer of leather belting. D. Mackintosh & Son are dyers and dealers in colored cotton. The Coghlan Steam Boiler Works make heavy rotary bleachers and

chemical wood-pulp digesters for paper mills, and also light and heavy plate iron work for mills and factories. A few years ago the United States postal cards were made in Holyoke, but the business has subsequently gone to Castleton, N. Y. Brick making has been a profitable and extensive industry in the city for years, the great number of new buildings making the demand for them strong.

The latest paper mill is that of the George R. Dickinson Paper Company. The capital stock of this company is \$150,000. Mr. George R. Dickinson, the principal owner, is as thoroughly interested in the making of paper as any man in the world, being a large owner of the property of the Dickinson & Clark, the Syms & Dudley and the Excelsior Paper companies. This mill is of the largest size and contains in its walls 4,000,000 bricks. One hundred and fifty hands are employed, and its pay roll is \$5,000 per month. Super-calendered book and engine-sized writing and envelope papers are made, and ten tons is the daily product.

An account of Holyoke's industries would hardly be complete without including a few at least, of the professional and mercantile concerns established here:

E. H. Allyn & Co., clothiers and furnishers, No. 253 High street, opposite City Hall. This elegantly appointed store is one of the most notably attractive establishments in the city. It has a frontage of 25 feet and a depth 100 feet; and it is handsomely fitted up in cherry fixtures, and

splendidly lighted by two fine show windows. The stock carried includes a large assortment of fashionable ready-made clothing of the finest material and best workmanship for men, youth, boys and children; hats and caps in the prevailing fashion; the latest designs in shirts, underwear, gloves, hosiery, and neckwear, and novelties of all kinds in gentlemen's furnishing goods. The business, which has attained important proportions, was established by the present proprietor, Mr. E. H. Allyn, in September, 1884, and he has built up a first-class trade and an enviable reputation. The transactions of this house are characterized by liberality and fair dealing, which have resulted in securing for them a trade of creditable proportions, an excellent reputation and a list of patrons that is constantly increasing.

Dean & Wheelock, wholesale and retail dealers in paper hangings, paints, oils, glass, etc., 147 Main street. This well known house has for over thirteen years been one of the leading establishments of the city. The store is a model of taste in its arrangement, and the stock is always standard and select, comprising everything late and desirable in paper-hangings, window-shades at wholesale and retail, etc., also a full assortment of superior paints, oils, glass, etc. A specialty is made of decorations and frescoing, in which the firm have made a widespread reputation, by reason of the finished, artistic manner in which all work is performed by them. The most marvelous effects in shades and combinations of colors, the most pleasing effects and harmonious blendings, and

the boldest, most unique designs are carried out in a faultless manner. The firm give employment to a force of about thirty-five hands and are prepared to execute all work in their line at short notice and in the most satisfactory manner. Messrs. W. T. Dean and W. F. Wheelock, the members of the firm, are both practically acquainted with every detail of their business. Mr. Dean is a native of New York State, while Mr. Wheelock was born in Massachusetts.

H. E. Gaylord, wood and coal, wood sawed and split to order. For ten years, Mr. H. E. Gaylord has been conducting an extensive business as a general dealer in wood and coal. His office and yard cover a space of 150x50 feet. The yard is in connection with the Holyoke and Westfield railroad by a switch track and has every facility for shipment of orders. About seven hands are employed by Mr. Gaylord, and a large trade is done in supplying residents of Holyoke and South Hadley Falls with coal and wood. Franklin coal from Lykens valley and all kinds of coal are furnished in any desired quantity. Mr. Gaylord is a native of South Hadley, and now resides at South Hadley Falls. He is an enterprising merchant, fully alive to the wants of the public, and knowing how to meet the demands of the trade. He is recognized as a representative merchant and valuable citizen and a gentleman of high standing. Office end of County bridge.

A popular and well-known house is that of C. B. Goldsmith, photographer, on Railroad street, near corner of Dwight, and nearly opposite Windsor Hotel. Mr. Goldsmith has the finest studio in

the city with unsurpassed facilities for producing first-class work. The building was erected for the purpose, is handsome and attractive in exterior and interior, metropolitan in all its accessories and appointments, with splendid light, etc. The processes being such as have been approved and adopted by leading photographers throughout the country. Mr. Goldsmith devotes his attention to every branch of the art, photographs of every description being produced. The prices are fully as low as can be obtained in any first-class establishment, while the reliability of the concern furnishes a strong reason why it should be warmly supported.

In all the principal lines of trade and industry which make up the bulk of Holyoke's material wealth and constitutes the foundation of her prosperity and progress, there are houses that stand prominently forward as leaders in their respective fields of energy. In the coal and wood trade of this city that position is unanimously assigned to the Holyoke Coal and Wood Co., and a brief sketch of its career and resources will suffice to show that it fully merits the distinction. Sept. 3, 1885, Mr. Gridley of the firm of Gridley & Moriarty, coal and wood dealers, sold his interest in the business to Mr. F. A. Whiting. Mr. P. J. Moriarty retained his interest in the business with Mr. Whiting, and together they purchased the office and business of the Holyoke Coal Co., and changed the concern to a stock company with a capital of \$6,000. Their yard, 74 Crescent street has a storage capacity of twenty-five hundred tons and is the best arranged and most

complete in all of its appointments of any coal yard in the city. The constantly increasing trade of this company is due in large measure doubtless to the fact that Messrs. Whiting and Moriarty give their personal attention to the business and buy nothing but first class goods. They claim to deliver them as a rule in better condition than do any other of their competitors. The office is centrally located at 82 Main street, is on the line of the horse railway and has telephone connections. You can depend upon the company for coal and wood of a superior quality and to have it delivered in the best possible condition.

M. A. Marks, merchant tailor, number 81 Main street, is one of the most accomplished tailors in Holyoke. He is a popular caterer to the finest class of custom and enjoys an enviable patronage. The business was established in 1877, and from its inception to the present it has been attended by the most marked success. His store has a frontage of 25x50 feet. At the rear of this is a workshop 25x20 feet in dimensions. The store is very elaborate in its fittings and furnishings, and a full stock of the choicest cloths of both foreign and domestic manufacture is displayed in great variety. The importations are made direct, thus enabling the proprietor to give the public the full benefit of his facilities. Ten trained artisans are employed. Mr. Marks is a practical cutter of extended experience, and in cut, finish and general excellence the reputation of the house is a credit to its proprietor. Mr. Marks is a native of New York city.

Phelps & Tower, housefurnishing goods, ranges, furnaces, tinning and plumbing, 18 Main street. This well established enterprise has been in successful operation here for twenty-two years. The house was founded in 1865 by C. H. & H. R. Tower, who conducted it until 1879, when C. H. Tower associated with himself G. A. Phelps and organized the firm of Phelps & Tower; throughout its career it has always had the confidence and received the support of the public. Three floors and a basement are occupied, and the premises are fitted up in the most convenient manner for the exhibition and storage of goods. None but the best known and most meritorious productions are carried. The assortments are always complete and customers are sure of obtaining what they wish in its most attractive and acceptable form. Special attention is given to tin, copper and sheet iron. They are also large workers in mill copper work, ventilators and mill works of all kinds. Only the most expert workmen are employed, of whom from ten to fifteen are kept constantly busy. Plumbing in all its branches is carefully done, sanitary requirements being respected and followed. Messrs. Phelps & Tower are both widely known and recognized as men of energy and ability, prosecuting their affairs in a trustworthy and honorable way.

A. Judson Rand, Dealer in Watches, Diamonds, Jewelry, etc., No. 9 Dwight street, who is a native of Holyoke, and has had seventeen years' practical experience in his line of trade founded his enterprise in 1879, and he has since built up a very extensive and substantial business. His store,

which has a frontage of 25 feet on Dwight street and a depth of 40 feet on Main street, is neat, well appointed and attractive, and is stocked with a handsome and valuable assortment of diamonds and other precious stones, a fine array of foreign and domestic manufactured gold and silver watches, rich, solid gold jewelry in all the latest designs, marble and other clocks, silverware of every description, etc. Mr. Rand carries one of the largest and finest stocks in his line in the city, and offers special bargains to his patrons. Competent and skilled workmen are employed, and a specialty of the business is the repair of watches and jewelry. Throughout his business career Mr. Rand has ever enjoyed the reputation of being an enterprising and reliable tradesman.

The well-known and popular dentist rooms of H. A. Smith, located at No. 235 High st., were founded fifteen years ago. Mr. Smith is a native of Massachusetts, and attends to all departments of dental art, and makes a specialty of filling teeth. Teeth are painlessly extracted, and artificial teeth, arranged on a new principle, are furnished at reasonable rates and warranted to give satisfaction. Gold crowns are fitted on to broken down teeth and roots, and full sets and part sets of teeth are made without plates and fastened in the mouth as firmly as the natural teeth. This bridge work is especially valuable in replacing one or two teeth. Prompt and courteous attention is given to all patrons. This firm takes a leading position in the profession, and has a large clientele.

Messrs. Tremblay & Codaire, dealers in dry goods, notions and millinery, are prominent and



WESTERLY FROM PROSPECT PARK.



representative business men of this city, and since they established their house here in March, 1883, have built up a large and influential line of custom that is steadily and continually increasing in volume. This firm have their headquarters at Nos. 345 and 347 Main st., where they occupy a handsome store fronting for thirty feet on the street and running back a depth of one hundred feet. The store is handsomely furnished throughout and is elegant in all its appointments. The stock carried is the chief feature; there is a complete assortment of fine dry goods, notions, millinery, and ladies' and gentlemen's furnishing goods. The goods have all been carefully selected direct from the best and most fashionable sources of supply, and which commend their own merits to the most fastidious customer, on inspection, while the prices asked are astonishingly low. The house has a wide trade, covering all parts within a radius of fifteen miles of the city. The members of the firm are Messrs. Joseph Tremblay, Jr., and Napoleon Codaire, both natives of Canada. These gentlemen are enterprising business men and popular merchants, and with their eight competent assistants are kept continually busy in attending to their numerous customers, who find the house one with whom it is pleasant to have business relations.

Prominent among the architects of Holyoke is Geo. P. B. Alderman, office 271 High street, Preston's Block. Mr. Alderman is a native of East Granby, Conn., is a graduate from the carpenters' bench, and has been a resident of Holyoke for the last nine years, during which time he has been

engaged in the study of architecture both theoretically and practically. He established himself in business here in 1885 and has already gained the confidence and esteem of the public, as the important and valuable work intrusted to him proves. It has been and is Mr. Alderman's aim to unite beauty and strength in all buildings, to secure good ventilation and above all good sanitary plumbing. Among the structures that have been designed and superintended by him may be mentioned: The brown stone front business block of J. S. Preston, High street, Guyott's Hotel, cor. High and Division sts., W. A. Allyn's residence, cor. Linden and Hampshire sts., Z. C. Warren's residence and stable, Northampton st., Rufus B. Holmes' residence, cor. Fairfield ave. and Pearl st., the residence and stable of F. A. Flinn at Lee, Mass., Seth H. Butler's residence at Middletown, Conn. and a great many others. Prominent among those *now* in course of erection are "Browning Hall," cor. Appleton and High sts., owned by J. S. Comins, the J. K. Morrill "Flats" cor. Appleton and Chestnut sts., residence of Charles Blodgett, M. D., Maple st., First Congregational Church, cor. Hampden and Pleasant sts., residences of Howard A. Crafts, Northampton st. and C. H. Flanders, Walnut st., and business blocks on High street for Fred. Batchelor, F. L. Taber, Louis J. Rigali, A. F. Gingras, John McDonald, and W. W. Tice, all of Holyoke. Also school-house at Willimansett, and residence for Leander Sibley, Spencer Mass. Mr. Alderman makes plans and specifications and gives estimates for work of any magnitude and is reasonable in his charges.

STATISTICAL.

Following is a table showing the population of the city, male and female, by wards, according to the state census of 1885. Since this was made up the truant officers have twice taken the census, their last figures showing that the present population is exactly 32,100, a very gratifying gain in two years:

MALES.		FEMALES.	POPULATION.	PERCENTAGES.	
				MALE.	FEMALE.
Ward 1,	1,767	1,995	3,762	46.97	53.03
2,	2,142	2,278	4,402	48.46	51.54
3,	1,894	1,820	3,714	51.00	49.00
4,	1,953	2,368	4,321	45.20	54.80
5,	1,469	1,753	3,222	45.59	54.41
6,	2,867	3,289	6,156	46.57	53.43
7,	1,126	1,174	2,300	48.96	51.04
Total,	13,218	14,677	27,895	47.38	52.62

There were in the city 14,003 native population, 6,782 males and 7,221 females; 13,380 foreign residents, 6,427 males and 7,453 females. The number of colored persons was four, one male and three females. The conjugal relations show that of the 6,783 native born males, 5,228 were single, 1,463 married, 85 were widowers and 7 divorced. Of the 6,435 foreign born, 2,965 were single, 3,224 married, 239 were widowers and 7 were divorced. In regard to the females, the native born were divided thus: single, 10,603; married, 3,052; widows, 328; divorced, 24; of the foreign born, 9,405 were single; 6,412 married; 1,060 widows; 11 divorced. Thus it will be seen that the proportion of married persons is much larger among the foreign residents. The ages by periods of years, are as follows: Under one year, 682, males 329, females 353; from one to four, 2,513, males 1,255, females 1,258; from five to nine, 2,899, males 1,431, females 1,468; from 10 to 13, 2,232, males 1,122, females 1,110; from 14 to 19, 3,869, males 1,792, females 2,077; from 20 to 29, 6,659, males 2,989, females 3,670; from 30 to 39, 3,794, males 1,885, females, 1,939; from 40 to 49, 2,707, males 1,278, females 1,429; from 50 to 59, 1,541, males 734, females 807; from 60 to 69, 697, males 303, females 394; from 70 to 79, 237, males 99, females 138; 80 and over, 65, males 31, females 35.

There are in the city 6,294 young men between the ages of 16 and 40; of these 3,703 are foreign and 2,591 native born.

There were in this city in 1885, 5,154 families having an average of 5.41 persons to each family. Ward 1 had 698, with a percentage of 5.39; ward 2, 700 with 6.31; ward 3, 699 with 5.31; ward 4, 781 with 5.53; ward 5, 612 with 5.26; ward 6, 1,220 with 5.05; ward 7, 444 with 5.18. It will be seen that ward 2 has the largest proportion of persons to a family. The city has 75 families of one person; 519 of two; 817 of three; 835 of four; 756 of five; 672 of six; 523 of seven; 350 of eight; 289 of nine; 124 of ten; 74 of eleven; 47 of twelve; 19 of thirteen; 13 of fourteen; 8 of fifteen; 4 of sixteen; 3 of seventeen; 1 of eighteen; 5 of nineteen; 1 of twenty; 3 of twenty-one; 1 of twenty-two; 15 of twenty-three and over.

There were in 1885, 2,612 dwelling houses, 2,565 of which were occupied and 47 unoccupied, the number of persons to dwellings being 10.88 and of families, 2.01. The number of wood houses was 1,459 and of brick 1,150, the number of wood and brick combined being three. Ward 6 had the largest number of houses, 698, and ward 5 the smallest, 258.

The following table giving the total valuation of the city for the past 18 years, as drawn from the Assessors' books, will give a definite idea of the manner in which the city has progressed from year to year from a valuation standpoint. The showing is very gratifying to all who have the interest of the city at heart. The total valuation of the city in 1870, was \$5,556,980, but in eleven years it has gained to such a remarkable extent that in 1881 it was \$1,197,405, an increase

of 115 per cent. All the factory operatives in Hampden county in 1855, including Springfield and several manufacturing villages, were but 949; in 1865, Holyoke, alone, had 2,381 persons engaged in the different branches of manufacture. This number went up to nearly 7,000 in 1875, and is now more than double that number. The capital invested in manufacturing in the city in 1850 was nothing. In 1865 \$3,286,580 were invested, an amount that was increased to \$6,868,200 in 1875. The capital actually invested now cannot fall short of eleven millions. The value of the goods made has grown from zero in 1850 to \$5,171,886 in 1865, \$8,788,306 in 1875, and to about fourteen millions in the past year. Stock to the amount of \$3,662,396 was used in manufacturing in 1865, while that used in 1875 was worth \$4,029,457; and by reasonable estimation the stock used the past year was worth at least \$6,000,000. These are the figures for the past 18 years:

	Valuation,	Am't Taxes.	Rate.	No. Polls		Valuation.	Am't Taxes.	Rate.	No. Polls
1870	\$5,556,980	\$67,906	16.90	2,433	1879	9,873,821	163,045	15.90	4,840
1871	6,534,365	116,584	16.20	2,806	1880	10,674,142	188,542	16.80	3,637
1872	7,690,986	123,126	15.30	3,067	1881	11,977,405	217,742	17.40	5,288
1873	8,578,192	160,066	17.60	3,284	1882	13,372,950	217,222	15.40	5,712
1874	9,244,232	208,537	21.20	2,387	1883	14,397,250	215,139	14.40	6,000
1875	9,681,727	214,656	20.80	3,387	1884	15,427,995	209,954	14.80	6,420
1876	8,688,342	215,432	20.00	3,221	1885	16,135,125	286,039	17.20	6,451
1877	9,397,430	169,668	17.40	3,242	1886	16,873,635	319,487	18.20	6,789
1878	9,801,447	155,743	15.40	3,597	1887	18,122,580	319,624	17.00	7,196

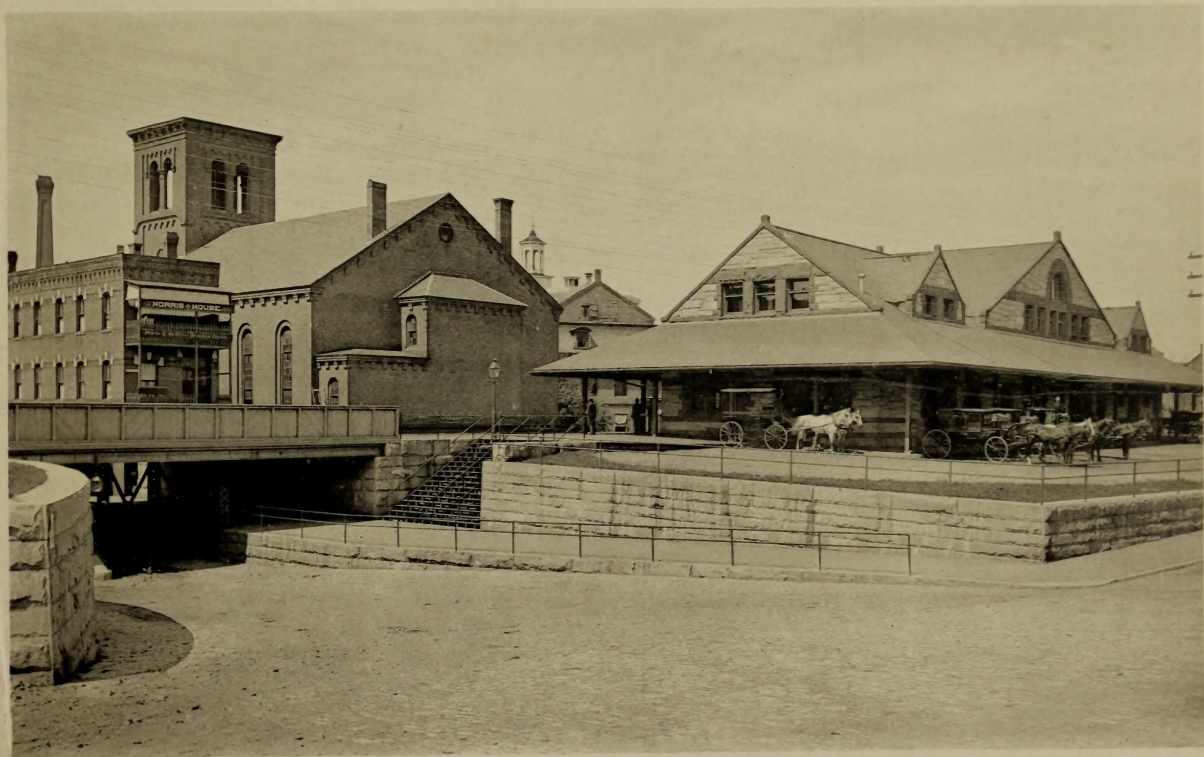
The registration of voters at the last city election was the largest in the history of Holyoke, the total number being 3,281. The ratio of voters is one in every 10 of population, which is much smaller than that of other cities of its size. The number of voters will be largely increased this fall and the re-division of wards will change the complexion of many. These are the present figures: Ward 1, 367; 2, 362; 3, 404; 4, 316; 5, 252; 6, 1,156; 7, 424; total, 3,281.

The following figures show how the city voted for candidates on the State tickets last fall: For Governor, Ames, (rep) 1,160, Andrew, (dem) 1,381, Lothrop, (pro) 80; plurality for Andrew, 221. For Lieut. Governor, Brackett, (rep) 999, Foster, (dem) 1,552; majority for Foster, 553. For Congressman, Whiting, (rep) 1,316, Currier, (dem) 1,189; majority for Whiting, 127. For Sheriff, Sanderson, (rep) 335, Brooks, (dem) 2,248; majority for Brooks, 1,913. For Senator, Newton, (rep) 697, Perkins, (dem) 1,860; majority for Perkins, 1,163. For County Commissioner, Sessions, (rep) 1,212, Hibbard, (dem) 1,346; majority for Hibbard, 134. For Representative, 4th District, Wright, (rep and dem) 494, Keane, (ind) 819; majority for Keane, 325. For Representative, 3d District, Judd, (rep) 692, Winchester, (dem) 517; majority for Judd, 75.

The following is the vote for the principal candidates at the last city election: For Mayor, O'Connor, 1,393, Delaney, 1,365; majority for O'Connor, 28. For City Clerk Griffin, 2,796. For City Treasurer, Ely, 1,230, Munn, 1,564; majority for Munn, 334. For school committee, Smith,

1,234, Moore, 1,546; majority for Moore, 312; Winchester, 1,341, Bonvouloir, 1,434; majority for Bonvouloir, 93; Donoghue, 166, Sullivan, 60; majority for Donoghue, 106. "Yes" vote 1,557, "No," 851; majority in favor of license, 706.

The following valuable statistics are taken from Part 2, Vol 1, of the census of 1885, and have never been published. The number of married women, married women without children and total number of children, native and foreign, is as follows: Total married women, 5,862; native born, 1,849; foreign, 4,013; married women without children 905; native 421, foreign 484. Number of children 24,619; native 4,581, foreign 20,038. Children living, 161,14; native 3,323, foreign 12,791. The total illiteracy is proportioned thus: Population, 10 years of age and over, native, 8,899, foreign, 12,902; native males 4,260, foreign 4,639; native females 5,943, foreign 6,959. Illiterates, 3,485; males 1,292, females 2,193. There are 1,292 males and 2,193 females who cannot write and 1,063 males and 1,741 females who can neither read or write. Of these 161 were born in this city. There were 15 school buildings valued at \$242,392. Of these 10 were primary, 4 grammar and 1 high. The number of incorporated private schools was six, and unincorporated, two, all valued at \$65,000. There were seven libraries, one city public, two public school, one religious association and three Sunday schools. The number of books was 13,263 and the value \$10,721, with an average circulation of 34,354. The following table shows the occupations according to the table of the census year:



CONN. RIVER R. R. STATION.

Occupations.	Males.	Females.	Totals.
Government,	75		75
Professional,	147	148	295
Domestic service,	149	5,354	5,503
Personal service,	210	84	294
Trade,	1,060	90	1,150
Transportation,	427		427
Agriculture,	228	6	234
Manufactures,	5,359	3,973	9,332
Boots and shoes,	51		51
Boxes (paper),	9	68	77
Brick, and drainpipe,	51		51
Building,	850		850
Carriages and wagon,	33		33
Clothing,	32	289	321
Cotton goods,	808	1,452	2,260
Food preparations,	52		52
Furniture,	14		14
Gas and residual products,	10		10
Ivory and bone goods,	9	4	13
Leather,	18	1	19
Lumber,	100		100
Machines and machinery,	310		310
Metals and metallic goods,	395	6	401
Models and patterns,	17		17
Paper,	1,480	1,353	2,833

Occupations.	Males.	Females.	Totals.
Photographs,	12	2	14
Printing and publishing,	123	49	172
Dye works and bleacheries,	11	1	12
Rubber goods,	17		17
Silk goods,	93	158	251
Stone,	45		45
Tobacco,	21		21
Wooden goods,	9		9
Woollen goods,	684	491	1,175
Worsted goods,	78	98	176
Other manufactures,	27	1	28
Mining,	11		11
Laborers,	619		619
Apprentices,	82	3	85
Scholars (public school),	1,672	1,459	3,131
“ (private school),	714	941	1,655
Students,	17	7	24
Children at work and at school,	40	24	64
Retired,	140	122	262
Unemployed (12 months)	14		14
Afflicted, etc.,	124	84	208
Dependents,	83	90	173
At home,	1,918	12,02	3,930
Not given,	129	280	409
<i>Total,</i>	<i>13,218</i>	<i>14,677</i>	<i>27,895</i>

EXPLANATORY NOTE.

GOVERNMENT.—Persons engaged in the service of the national, state and city governments, or in the U. S. army and navy.

PROFESSIONAL.—Persons connected with religious, law, medicine, literature, art, music, amusements, education and science.

DOMESTIC SERVICE.—Persons concerned or employed in the hotel, boarding and lodging service, housewives, persons engaged in housework (without remuneration, generally in own family), housekeepers and domestic servants.

PERSONAL SERVICE.—Persons who render personal service, as barbers, bootblacks, carpet cleaners, companions, janitors, matrons, nurses, stewards, ushers, valets, washerwomen, watchers, watchmen, etc.

TRADE.—Merchants and dealers, salesmen, book-keepers, clerks, agents, bankers, brokers, messengers, porters, etc.

TRANSPORTATION.—Carriers on roads, steam railroads, seas and rivers.

AGRICULTURE.—Farmers, farm laborers, gardeners, persons engaged in the care of animals, etc.

MANUFACTURERS.—As specified.

MINING.—Persons employed in mines, quarries, pits, etc.

LABORERS.—General day laborers.

APPRENTICES.—Learning trades.

SCHOLARS.—Public and private school scholars, as specified.

STUDENTS.—Persons at college, or studying special branches, as law, dentistry, medicine, etc.

CHILDREN AT WORK AND AT SCHOOL.—Children at legal school age (10 to 13) who both work and go to school or work only.

RETIRED.—Persons retired from active business.

UNEMPLOYED (12 MONTHS).—Persons not employed at their accustomed occupation at all during the census year.

AFFLICTED, ETC.—Persons suffering with acute or chronic diseases, blind, deaf, dumb, maimed, lame, insane, idiotic, and other afflicted persons, and paupers and homeless children.

DEPENDENTS (IN PRIVATE FAMILIES).—Relatives or other persons more or less dependent for support.

AT HOME.—Children too young to go to school.

NOT GIVEN.—Young persons or adults, of working age, who, for some reason, have no occupation.

The publisher is indebted to Charles F. Pitgin, Acting Chief, of the State Bureau of Statistics, for valuable information in regard to census figures, and to W. E. Kendall for local statistics.





